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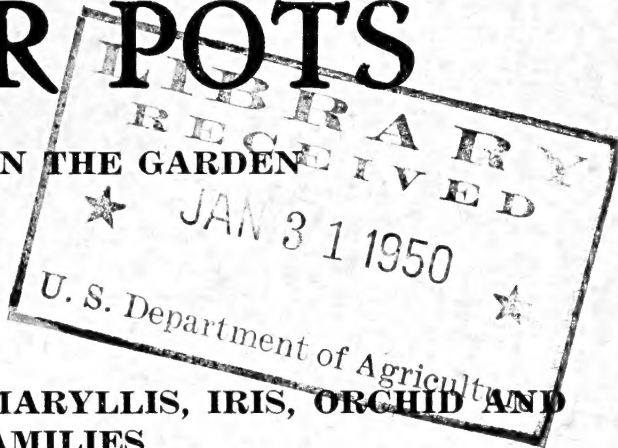


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BULBS FOR POTS

AND SPRING PLANTING IN THE GARDEN



A CATALOG OF THE BULBS OF THE AMARYLLIS, IRIS, ORCHID AND
OTHER PLANT FAMILIES

SPECIAL ARTICLES: How To Grow Amaryllis;—Gladiolus;—Gloxinias;—
Tuberous Begonias;—Billbergias, etc. Full culture information for all plants
listed. Many new listings.

A Personal Letter, to you, "Fun In '50."

SPRING 1950



CECIL HOUDYSHEL

1412 Third St.

La Verne, California

Return Postage Guaranteed

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Postmaster, marked "Refused."

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FUN IN '50

Dear Floral Friends,

The 40's are past and I am glad to see them go. Not that I welcome the passing milestones any more but the bloody '40's brot war and its many after-maths of struggles and disappointments. They brot much hunger, loss of homes and lives and the displacement of many large groups. But we must credit the 40's with a large accomplishment—victory. Time never returns. The 40's are behind us, the 50's before us. Let us have fun in '50 and a lot of hope. If we do take the fun that life offers, we are more likely to realize our hopes for the future.

Fun for some can only mean frolicsome gaiety. In the right proportion this is the privilege of youth and even the old folks have their square dancing. For a flower lover, it's fun to grow flowers. Reading catalogs, planning, preparing, planting, achieving success are all parts of a thrilling adventure. They are all fun.

Fun is fun — damental, a necessity of the human mind because, like sleep, it "knits up the ravelled sleeve of care." If growing flowers is your favorite hobby, you have the best because it offers fun and relaxation and cultivates aesthetic and spiritual values. If you are a salesman, you will sell more goods and advance and earn more money. It is of equal value to lawyers, doctors, merchants, mechanics or laborers.

A doctor once ordered some bulbs from us saying he wanted something to look at besides sick people. A wise idea.

If my argument is correct, then when you buy flowering bulbs or plants you are not merely indulging in a luxury. You are making an investment that will return a profit.

Here is something that I hope may give you some fun. If you love flowers and plants you have no doubt been reading about them. Test your fund of information by answering the following questions. They are intentionally difficult so if you can answer only one or two you have done very well and you should make research in our catalog for answers to the rest of them.

1. What is frangipani?
2. What part of *Monstera deliosa* is edible?
3. Give name of an early distributor and promoter of apples.
4. Who was Louie Gim Gong?
5. What famous columnist stated that pansies were orchids?
6. What plant name is spelled both correctly and incorrectly on the same page in Webster's Unabridged? (Look up the names here used. Look in word list and top of page.)
7. Are Saintpaulias related in any way to violets?

This edition of our catalog offers some information here and there on plant breeding, directions for crossing and for growing seedlings. Breeding plants, started as a hobby, has often led to fame just as it did for Louie Gim Gong, a Florida Chinese, who produced new varieties of citrus fruits.

This summer we must revise our mailing list and we may remove 10,000 names. We must remove the names of those who have not sent an order for \$1.00 or more in '49 or from this catalog. We do admit that business is down. We must cut down expenses and 10,000 catalogs, twice a year cost us over \$1000.00 to send out. If our catalogs help you or if you enjoy them, you should give us your orders. It is the only way to stay on our mailing list. If you do not get our fall catalog you will know why. If you are no longer interested in our catalogs, do please return this copy to your postmaster and ask him to send it back, marked refused.

I did want to write you a 5 page letter. There are so many things I wanted to write about. But the printer will not allow it.

Wishing you a prosperous, happy year and a lot of fun and flowers.

Sincerely,

CECIL HOUDYSHEL

P.S. I have just acquired a few Gloxinia "Waterloo," bright scarlet, frilled edge, price 65c ea., 12 for \$6.00.

TERMS AND INSTRUCTIONS FOR ORDERING

The prices in this catalog cancel all former quotations.

California Customers must add 3% **Sales Tax**.

Remit by check or M. O. If stamps are sent, send \$1.05 for \$1.00. We do not carry accounts. Remit the full amount of your order in advance.

C.O.D. We do not ship bulbs C.O.D.

Postage prepaid on orders of \$1.00 or over. Under \$1.00, add 10c extra.

Insurance and Special Handling. Please note changes in rates. **Insurance** up to \$5.00 value costs 5c. \$5.00 to \$10.00 costs 10c. \$10.00 to \$25.00 costs 15c. Over \$25.00 costs in proportion to \$25.00 rate. **Special Handling** gives your package the same handling as First Class mail and hastens delivery. More safe. Up to 2 lbs. costs 15c. 2 lbs. to 20 lbs. costs 20c for each package. Heavier in proportion.

Special Delivery of packages costs you 25c for 2 lbs. or less. 2 to 10 lbs. costs 35c. Over 10 lbs. costs 45c. This hastens transportation and delivery of your package as it will also be given the same service as Special Handling without an extra fee. Most postoffices require that you sign for the package. Thus it is not left outside to freeze.

Insurance, Special Handling and Special Delivery are for your protection. Please remit the amount required if you want this protection.

Express is much the safest transportation. Express cars are heated in winter but mail cars are not. Express also handles more carefully and assumes more responsibility for delivery in good order. But it costs more and we ship that way only collect. We add extra bulbs to approximate cost of postage saved to us.

Prices given are usually for one bulb. A dozen costs 10 times the price of one; 6 are sold at dozen rate; 100 cost 70 times the cost of one or 7 times the cost of one doz.; 50 are sold for the price of 4 doz., not at 100 rate, unless otherwise specified.

Wholesale. We do not give discounts to dealers on small quantities of items from this catalog. Only a very few items herein can be quoted below the quantity rates, when given. But in most cases those rates are about equal to usual wholesale prices. Upon inquiry we will quote prices on desired items if able.

Foreign orders. Our prices include prepaid delivery as far as our 8th postal zone. We can usually prepay to Mexico or Canada. It is best to include some extra on export orders. If too much, we add extra bulbs. The 100 rate prices do not apply on export orders unless customer pays transportation. Air mail is often advisable for export orders but expensive.

Canadian Customers. Apply to Sec. of Destructive Insect and Pest Act, Advisory Board, Ottawa, Ont. (or ask your P.M.) for Permit and mailing label and send these with your order.

Many **Latin American Countries** now have certain restrictions on importations. Usually it is only necessary to send us an official permit. Your post master can supply all information or tell you where to get it. Be sure to comply fully as we are not permitted to ship your order unless we comply with your law. Because of the new laws we have been unable to ship some orders and the value has been placed to your credit.

Errors. We make them but correct them, if notified at once.

Partial Shipments. If everything is not included in first shipment a slip so stating is enclosed. When final shipment is made, another slip so states. Check them with order and if short, notify us at once.

Guarantee. Our bulbs are true to name and healthy, but we do not guarantee results since we do not control the conditions under which they are grown. If, in your opinion, our bulbs are not up to our specifications, notify us at once. If you are not then satisfied with our explanation, they may be returned. No refund will be made if planted unless circumstances indicate bulbs were at fault.

Culture directions are in this catalog, hence none are sent with bulbs.

Catalogs. **Spring Catalog**, Jan. 15. **Fall Catalog**, Aug. 15. Names are dropped from our mailing list if you do not buy for two years. If not interested, please ask P.M. to return this catalog at our expense, thus saving paper, labor and postage.

Price Lists. About once a year we issue Orchid Price List, Saintpaulia Price List and The Iris 400, a price list of higher priced Iris aristocrats. Applicants are also placed on these special mailing lists. If you really intend to buy from us, they are free. If you want them only for the valuable culture advice therein, please send 10c for each one wanted.

Correspondence. We enjoy your friendly letters. I answer them twice a year in our Introductory Letter. It is a fact that I work twelve hours a day or more and am still unable to answer all letters requiring it. Read entire catalog before asking questions.

We include in our catalog and price lists about everything necessary to success in the culture of the bulbs, orchids and plants that we list. Most of our letters of inquiry ask us to repeat information given therein. One of my greatest joys is helping people with their garden problems. That is why we put all this information in our catalogs, but it's getting along toward late afternoon for me and I can't write quite as many individual replies as I would like to do. But if necessary to consult me, make the reply easy. Where possible make it a questionnaire that I can answer yes or no. Enclose a self addressed post card or envelope.

Identifying Bulbs. We usually can. Send flower, foliage and if possible a bulb. Give all facts known. Enclose self-addressed postcard and attach your letter to outside of package. We do not attempt to identify horticultural varieties of Gladiolus, Iris, etc.

Time of Delivery. All bulbs are delivered within range of correct planting dates. Delivery dates in catalog are sometimes only approximate.

If you like our catalogs, their friendly tone and the information they always contain and wish to continue to receive them, it is necessary that you give us your orders. That is our only means of financing their publication. Sometimes we receive a contribution of \$1.00 to \$5.00 saying, "I don't need any bulbs, but keep sending the catalogs." We would rather sell you the bulbs. Since orders under \$1.00 are an expense to us and unprofitable, they are not counted as entitling the customer to remain on mailing list. We gladly send such orders if 10c extra is enclosed but they do not add to customer eligibility for catalogs.

GENERAL CULTURAL DIRECTIONS

Rich sandy loam is the best soil. Only a few, like Bearded Iris, prefer heavy soil. A very few, like Gloriosas, must have sandy soil.

All soils require the addition of much humus. Compost all garbage, weeds, leaves, cut branches and manures. When rotted, add to soil and thoroly mix.

Fertilizers. We recommend only animal manures, compost and commercial fertilizers that are of organic origin. Fresh manure can be used on a few plants, that are growing vigorously, as a very light mulch, but after flowering. Too much fertilizer before flowering time may almost or wholly stop the flowers. When the growth of a plant becomes abnormally rapid it is unlikely to flower or produce fruit. Your over-fertilized peach tree is likely to produce no fruit.

Do not fertilize a plant in dry soil, or use any fertilizer (unless thoroly rotted in a compost heap) in the soil before planting bulbs, seeds or plants. Water lawns, trees, and plants well the day before applying fertilizer and again a few days after application. Do not fertilize a sick plant in order to make it well. You are more likely to make it worse or even kill it. Small plants and seedlings should not have too much either. Lush, rapid growth may be weak and "flabby." Sturdy growth with firm structure is better. Chemical fertilizers are like "patent" medicines. They are stimulating but often the final result is bad. The physical structure of soils is the most important thing. A well drained, friable soil is the best. Sand and humus can be added in sufficient quantities at least in flower beds and the humus can be added in fields by growing cover crops. For humus, add rotted manure, composted weeds, grasses and leaves, leaf mould or peat. It is seldom necessary to add any but organic materials to soils.

Compare plants with people. Both are living, organic beings. Air, water and food are necessary to their growth and health. But one does not give babies beefsteak, fried potatoes, apple pie and a cup of coffee. Nor is this a

good diet for an invalid or an ill person, however good it may be for one in vigorous health who performs hard physical labor. Nor should plants be over fed nor fed at all if sick or thirsty. But since one cannot add much rich food when potting a bulb, very good results may be obtained by a monthly feeding of very weak liquid manure, color of very weak tea. A more convenient way is to use Plantabs or Vigoro tabs which we list under Garden Supplies. They are less messy.

After blooming, many neglect their bulbs. As a result the bulbs do not flower the following year. For success one must continue to give good culture. This is the time to fertilize, irrigate and cultivate frequently, until yellowing foliage indicates the bulb is becoming dormant. During this growth period next year's flower buds are formed.

Depth of planting and distance apart often cause too much concern. Bulbs usually have sufficient adaptability to do well under widely varying conditions. If left in one place a few years, most bulbs adjust themselves to their preferred depth. Approximately, bulbs should be about 2 or 3 times their diameter apart unless their habit of growth is spreading — like *Ranunculus*. In such cases plant farther apart. Small bulbs as large as Daffodils may be 4" to 6" deep. Bulbs with a heavy erect stem need deep planting in order to remain erect. Plant deeper in light sandy soils than in heavy soils and in cold climates to protect them from frost.

Pests. Snails and slugs are serious pests and must be controlled in flower and vegetable garden. The best control is Bug-Geta Pellets. These may be broadcast while one must stoop to place a powder. They also help to control cut worms and grasshoppers. The 25 lb. bags are the most economical way to buy for a bad infestation. **Ants** are pests everywhere. They distribute aphids and mealy bug and tend them like domestic animals. Ant-B-Gon will kill entire colony. Quick temporary relief may be had in greenhouse and garden by use of a Chlordane dust, very poison. Keep it off of food plants and away from children and pets. Do not breathe the dust and clean up thoroly after applying it. It is also an excellent dusting powder on *Gladiolus* as a remedy for thrips. It also gets cut worms. **Mealy bugs** are universal pests and very destructive to plants. First, destroy all the ants and wash or clean them off of house or greenhouse plants. A bit of cotton twisted around end of a toothpick and then dipped in alcohol in a useful tool. In the garden, a spray of water from the hose will dislodge mealy bugs, aphids, etc.

See our listing of **Insecticides** under **Garden Supplies**.

If you do much garden work and end the day too tired you owe it to yourself to use our light weight plastic and indestructible, Resinite garden hose. See the listing. It is the most economical of all.

Acid and Alkaline soils. Most plants thrive in mildly acid, neutral or mildly alkaline soils. But others do not have so wide a range of tolerance. Rhododendrons, Azaleas, Camellias, Gardenias, Zantedeschias, Caladiums (and other members of Arum family), Nerines, Haemanthus, Gloxinias, Begonias, Orchids and most shade loving plants require an acid soil. Some like *Gladiolus* prefer mildly acid to neutral soils: Bearded Iris do best in neutral to alkaline soils. The acid-alkali balance depends upon the concentration of hydrogen ions in a saturated solution. This is expressed in pH units. pH 7 is neutral. Below that the acidity increases; above it the alkalinity increases. For the mathematical, I will explain that the numeral is the negative logarithm denoting the concentration of hydrogen ions in gram atoms per liter.

To determine whether your soil is acid or alkaline, purchase for a few cents at your drug store a pad of litmus paper. Get both blue and red if available. Moisten the soil. Blue litmus paper is turned red by an acid soil. Red litmus paper is turned blue by an alkaline soil. The stronger acidity or alkalinity is shown by more rapid change of color and a deeper shade of color. If only one color paper is available moistened red litmus may be turned blue by holding it in the fumes of household ammonia. Turn blue litmus red by immersing in a very weak solution of any acid like white vinegar. Then dry.

Horticultural Peat, leaf mould, (oak leaf mould is the best) or compost will help correct soils that are too alkaline. Good drainage will cause it to leach out.

Danish Peat. Any peat is difficult to get right now for some reason.

Buy any horticultural peat locally if possible. Danish peat is one of the most acid but is quite lumpy. It is fine for basketing Laelias and other orchids. When used in soil it is better to soak a day or so then rub thru a coarse screen or break up lumps by hand. We prefer to break it up and make finer in texture also when used in potting Begonias, Gloxinias, etc.

Vitamin B1 is a useful, stimulating food for plants and reduces the shock of transplanting.

Please note our listing of these useful products under Garden Supplies.

Sources of more information. Subscribe for Flower Grower, Albany, New York. \$3.00 per year. \$5.00 for 2 years. Send directly to them. Tell them that you are subscribing on my recommendation. I have read and advertised in this magazine since its inception by Madison Cooper (long ago) as the Gladiolus Grower.

Join your local garden club and be active in it. Tell your fellow members about our catalogs and price lists.

American Plant Life Society. Note mention of this under Amaryllidaceae. **The American Horticultural So.** publishes the National Horticultural Magazine, quarterly, which members receive. This beautifully printed and illustrated magazine covers entire field of horticulture. Send \$5.00 annual dues, to Am. Horticultural So., 821 Washington Loan and Trust Bldg., Washington 4, D.C. **The Midwest Hemerocallis So.,** send \$3.00 to Pearl Sherwood, Atlantic, Iowa. **North American Gladiolus Council,** send \$1.00 to A. Bazdorf, Lincoln Park, N. J.

POTTING DIRECTIONS

Bulbs bloom better in pots that are not too large. A 2½" Amaryllis will do well in a 6" or 7" pot. Many use a 5" size but I prefer to give as large a pot as will be favorable to flowering. Give larger or smaller bulbs of any sort, pots in proportion to this size, that is, 2 or 3 times the diam. of bulb. Small bulbs may be planted 2" or 3" apart in any size pot.

Most large bulbs, like Amaryllis, may have 2/3 of bulb above surface but small bulbs, especially Anemones and Ranunculus, should be covered about 1".

Use clean pots. It is advisable to boil and scrub the surface. Even new clay pots should be boiled, or soaked for two days to remove chemicals. Cover the hole at bottom with a piece of broken pot, concave side down. Above this place small pieces of broken pot and gravel. This helps to drain away excess water. Over this drainage material we usually place a handful of sphagnum moss to prevent the soil from sifting into and clogging the drainage material.

The drainage must be perfect and it is essential that the soil above this drainage be of a friable texture that permits water to pass thru freely.

The best soil is a rich sandy loam with the addition of plenty of humus. For humus one can combine rotted leaf mould and old rotted dairy manure well broken up and rubbed thru a screen of smallest gauge. For most plants the proportion can be 2/3 sandy loam, 1/3 humus.

Fertilizers. Many advise the addition of fertilizer to potting soils. We never use any except the rotted dairy manure and leaf mould and sometimes a tablespoon of bone meal. If new roots come into contact with much fertilizer they are burned. Commercial fertilizer is especially a hazard. A potted dormant bulb, seed or plant must be babied to the extent of giving only a light diet. A rich, full meal will often cause failure. We prefer to get them well started and growing and of some size before adding more fertilizer, if any. The chief food of plants is carbon dioxide taken from the air thru the foliage. Water, nitrogen and minerals come from the soil.

For the starting temperatures and further culture of the plants please read "General Cultural Directions" and the culture advice given with the listings. Be sure to read both.

GARDEN REFERENCE BOOKS

Bailey's Cyclopedia of Horticulture. This 3-vol. set of over 3,600 pages describes almost every cultivated plant and has a wealth of culture information. On Orchids alone, this work is most valuable for its descriptions and culture instructions for almost every orchid in cultivation. The same is true for all types of bulbs, plants, shrubs or trees. Price \$37.50. This is the most

monumental work in any language on the entire field of Horticulture. It is an ideal gift for a plant lover.

Hortus Second (Bailey). A Concise Dictionary of Gardening. This 778-page volume lists and describes nearly every plant offered in catalogs, and some that are not in the Cyclopedia of Hort. It contains only a few culture hints. Both works should be in every garden library. Price, \$7.50.

The above publications are subject to price changes, without notice by the publishers. In the case that prices again rise on these or any books listed here we will notify the customer. The customer may then accept or cancel order.

A Southern Garden, by Elizabeth Lawrence, a handbook for the Middle South. A most useful handbook for all gardeners, north or south. Bulbs and all garden plants. 251 pages. Price \$3.00.

Enjoy Your House Plants. Excellent handbook of window gardening by Dorothy Jenkins and Helen Van Pelt Wilson, 238 pages. Price \$2.50.

Begonias And How To Grow Them. Bessie Raymond Buxton. Invaluable in growing all Begonias, including the Tuberous. 161 pp. \$3.00.

American Orchid Culture. Edward A. White. This is a complete handbook of American Orchid Culture for both commercial and amateur growers. Most interesting accounts of Orchid hunting trips, in many lands, are related. 14 beautiful color plates and many other illustrations. A beautiful, interesting, useful book. 276 pp. \$6.00.

Greenhouse Gardening For Everyone. Ernest Chabet. Important factors are noted including correct temperatures for forcing plants, bulbs and orchids. 266 pp. \$4.00.

Tuberous-Rooted Begonias and Their Culture. George Otten, veteran grower of Tuberous Begonias, with 60 years experience. An 88-page book, with 35 excellent illustrations. Price \$2.00.

Bulbs For Beauty. Charles H. Mueller. 296 pages, illustrated. Experienced gardeners will gain new information about bulb culture from this book. Price \$3.50.

How to Grow Orchids. By Cecil Houdyshell. A 12-page pamphlet, no illustrations, carefully explains requirements of easily grown orchids. Price 25c.

The African Violet, Saintpaulia. Helen Van Pelt Wilson. The first and still the best book on Saintpaulias. Revised and enlarged, by Helen Van Pelt Wilson. The revision includes all the better new varieties. Discusses all phases of culture and classification of types and varieties. Price \$2.75.

The New Garden Encyclopedia. By a group of Horticultural Experts, edited by E. L. D. Seymour, a well known garden magazine editor and authority on gardening. This is a complete, practical guide for every detail of gardening. It gives pronunciations of plant names. 1380 pages, 10,000 articles, fully illustrated. Price \$5.00.

Favorite Flowers in Color. Edited by Seymour. 634 pages of descriptions and 800 flowers are shown in full natural colors. Everything that flowers from trees, shrubs, to bulbs. One of the most beautifully illustrated flower books published. Price \$4.95.

The books are cloth bound and printed on book paper. Postage prepaid. Add 5c for insurance to \$5.00. Sales tax 3% for California customers.

GARDEN SUPPLIES

Most of the following are mentioned in our **General Culture Directions** and are of use in the outdoor garden, window garden or greenhouse.

Bug-geta Pellets, 25 lb. bag, express f.o.b. La Verne, \$6.25.

Ant-B-Gon. Set 4 dispensers, filled, 75c f.o.b. Cheaper by mail. Ask your P.M. the cost of 2 lbs. from La Verne and send this amount extra. Liquid for refilling, 4 oz. 30c postpaid.

Garden Volc is a pure petroleum spray, effective for mites, mealy bugs, scale, red spider, white fly larvae, etc. Dilute with water to make 200 times its volume. It is also a good carrier for other insecticides like Black Leaf 40 used according to their own directions. Use small fly sprayer for house plants. Price, 4 oz. for 40c postpaid. For extensive use buy one gallon cans for \$2.85 f.o.b. La Verne. We will ship by express, or send postage for 10 lbs. if preferred by mail. Before using any spray it is best to learn first whether the

plants are tolerant to that spray. If you do not find or know the information, try one plant, or even one side of a plant first.

Fertilizers. Use tablet form that can be pushed down on side of pots to gradually melt down. Can also be used on outside garden plants. **Plantabs**, small package 13c, prepaid. Large package, 65c, prepaid. **Vigoro Plant Tablets.** Vigoro is a well known and approved fertilizer. Try this convenient form for your house plants. They are just as good too in the garden. Per package, 13c postpaid.

Horticultural Peat. We offer a good grade of fine Michigan peat, 12 lbs., express collect for \$1.00.

Danish Peat is more acid than our domestic peat. Price 6 lbs. for \$1.00. Postage extra. Ask your P.M. what zone Los Angeles, (a suburb of La Verne), is in and send parcel post postage for 6 lbs. Per 100 lb. bale, \$8.50, f.o.b.

Sphagnum moss is very useful for lining wire baskets for hanging plants and has many other uses. It has an acid reaction and retains moisture, hence is valuable in the soil for acid loving plants. We handle the very best from Michigan. Price \$3.85 at our ranch. Please add 25c for packing charge on mail orders as we must repair bags when shipped. Weight 12 to 14 lbs. We ship by express, charges collect.

Rootone. One half ounce for 50c, postpaid. 1 lb. can, \$5.00 plus postage if by mail.

Vitamin B-1, 100 tablets, 75c.

Directions for use, applying only to our own tablets. In transplanting bulbs or any plants, loose roots, dissolve 5 tablets in 1 gal. of water. Soak roots in this 15 to 30 min. Pour solution around plant when set. To stimulate growing plants, for the first application, dissolve one tab. in 2 gal. water. For succeeding waterings, use 1 tab. to 4 gal. water once a week. **Warning.** Do not soak dormant bulbs in Vit. B-1. It rots them.

Garden Hose are a prime necessity for gardens everywhere and for greenhouses. The most economical and the lightest weight hose is the **Airlite** brand of **Resinite Plastic hose**. The inside diameter of this hose is only $\frac{1}{2}$ " yet because the surface is mirror smooth and frictionless it delivers as much water as rubber hose of a larger diameter. Nothing can injure this hose except fire and very hot water and it is claimed to last forever. However no one has yet lived long enough to prove this claim. It is not damaged by sun, weather, being run over by auto or truck. No chemical affects it. It has no cotton to rot nor rubber to disintegrate with age. It is like Cleopatra, "Age cannot wither her." Price, 25 ft. length, which weighs less than 4 lbs., \$5.10 f. o. b. La Verne. Or by mail, postpaid zones 1 and 2, 35c extra. Zones 3 and 4, 45c extra. Zones 5 and 6, 55c extra. Zones 7 and 8, 75c extra.

Don't forget 3% sales tax due from California customers.

Wire Baskets. Our wire baskets are useful for growing many types of orchids and for all hanging basket plants. They are electrically welded, galvanized steel and polished to a silver brightness. The best obtainable. Prices 8" 90c ea. or \$10.50 per doz. 10" for \$1.10 ea. or \$12.75 per doz. All are prepaid prices.

Baffle Spray Fogger, No. 215A. For greenhouse, lath house or outside. Throws a fog spray 6 ft., increasing humidity and lowering temperature. Adjustable. Fits a $\frac{1}{2}$ " pipe. Price, \$1.36, (plus 4c tax in California). Send 30c extra if wanted by mail.

Hose End Fogger, No. 217 AB. Useful for spraying Orchids, Tub. Begonias etc. and for damping the greenhouse to increase humidity. Price \$1.50 and 35c extra by mail.

BULBS AND ORCHIDS AS POT PLANTS

Bulbs and orchids are most desirable as pot plants. They may be grown in the living room, kitchen, a light basement or in a small greenhouse quite as well as in a large commercial greenhouse.

The following bulbs and plants are recommended for growing or forcing in pots.

Amaryllis Family: Agapanthus, Amarcrinum, Amaryllis, Clivias, Habranthus, Haemanthus (or Blood Lilies which include Katherinae, Coccineus, Albiflos, Carneus etc.), Ismene, Nerine, Sprekelia, Tulbaghia, Zephyranthes

etc. Include Crinums if you have large space; **Iris Family:** Gladiolus nanus, (Baby Glade), Dutch Iris, Freesia, Ixias, Sparaxis, Babiana, Tritonia, Marica, Moraea; **Lily Family:** most of the true lilies, Roman and Dutch Hyacinths, Muscari or Grape Hyacinths, Scilla, Ornithogalum, Veltheimia; **Oxalis Family:** both winter and summer growing species; **Arum or Calla Lily Family** includes White, Yellow and Pink Callas or Zantedeschias, botanically, the Black Calla, or Arum palaestinum, Fancy Leaf Caladiums, (the most gorgeous pot plant in existence because every leaf is like a brilliant flower), Sauromatum venosum, Amorphophallus revieri; **The Gesnaria Family** including Gloxinia, Achimines and Saintpaulia; Orchids; Ranunculus and Anemones; **Bromeila** or Pineapple Family including Billbergias.

All of these are listed, either in our spring or fall catalog. Nearly all our bulbs and plants may be grown in pots but there are a very few exceptions and these are indicated in the listing.

CATALOG ARRANGEMENT

is by Plant Families, according to their relationships.

In the following lists the **genus** (plu. genera) is mentioned first. After it, the **species** (plu. also species) or horticultural variety is named. The initial of the genus is used for the second and succeeding species. Thus A. will stand for Amaryllis or Agapanthus depending on the genus last named in full. When a person's name in parentheses follows a plant's name, that person is the botanical authority for the name.

THE AMARYLLIS FAMILY — Amaryllidaceae

This Family includes the following bulbs, Agapanthus thru The Alliae.

The American Plant Life Society was founded in 1934 as The American Amaryllis Society. The interests of the Society have recently been enlarged to include other bulbs and plants and the name changed but with no lessening in interest in Amaryllids.

The annual book, "**Herbertia**," is devoted to Amaryllids. It consists of about 250 pages, beautifully illustrated, on fine book paper, and is edited by Dr. Hamilton B. Traub of the U. S. Dept. of Agriculture, the greatest living authority on the Amaryllidaceae. Each member receives a copy.

The members also receive the occasional publication, "Plant Life," on other bulbs and plants.

Those who grow Amaryllis as an interesting and intellectual hobby and who love their vivid beauty, are invited to become members of the society. The annual dues are \$3.00 per year, which you may send me.

The society also publishes the following two books. These are bound in manila paper. These books will be of interest only to advanced collectors and students, those who understand scientific terms.

Amaryllidaceae: Tribe Amarylleae, by Traub and Moldenka. 18 illustrations, 194 pages. \$4.00. This is a systematic treatment of one of the main tribes of Amaryllids, in scientific language. The most important work on the taxonomy of Amarylleae since the publication of Baker's "The Amaryllideae," in 1888.

Descriptive catalog of Hemerocallis Clones, 1893-1948. By Norton, Stuntz and Ballard. This describes by means of key numbers all horticultural varieties and species of Daylilies.

These may be ordered direct from the secretary of the society E. Frederick Smith, Dept. H., Box 2398, Stanford, Calif. He will be glad to receive your membership fee for the society or your renewal.

Amaryllid nomenclature. Carl Linnaeus, father of modern botany, made the first, rather complete scientific arrangement of plants according to relationships in the 18th century. His information about many plants was wholly inadequate to achieve perfection. Even in my later first French edition, 1798, nearly all American epiphytic orchids were placed in one genus, Epidendrums, and under the genus Amaryllis he included certain Crinums, Zephyranthes, Sprekelias, Brunsvigias, Nerines, etc. Botany is a progressive science and later explorations and discoveries have made possible many improvements in plant classifications and have required changes in nomenclature. Horticulturists are often loath to accept the new classifications and names. But we

must do so even if inconvenient at first. It is not logical to continue an error.

In our catalogs, we accept changes in classification and names as made by recent writers in *Herbertia*. These have been approved in "Gentes Herbarum," the publication of the Bailey Hortorium of Cornell University. To help you avoid ordering a bulb you already have we give both old and new names, thus: *Brunsvigia rosea*, (*Amaryllis belladonna*); *Amaryllis advena*, (*Hippeastrum advenum*).

Agapanthus means Love Flower. Blooms in spring and summer. Large attractive umbels, blue or white on tall erect stiff stems. Easy to grow in south in full sun or slight shade, any good soil, and in the north in tubs or buckets, wintered in basement. Delivery any time.

A. longispathus. New species. Flowers resemble *Orientalis* but blooms more profusely and is more graceful. 50c.

A. orientalis (umbellatus) Blue Lily of the Nile. Our variety is an especially fine one with deep blue flowers on a tall stem. Many flowers are produced in spring and thru summer. 50c ea. Extra large roots, 75c.

A. orientalis, "Sky Blue." Lovely light blue. 75c ea.

Amarcrinum Howardii (*Crinodonna Howardi* is the better name.) A cross between *Brunsvigia rosea* (*Amaryllis belladonna*) and *Crinum moorei*. Flowers are a pure pink and very attractive. As it is a winter bloomer and profuse, it is a valuable bulb for a large pot. We have about 24 left over bulbs that are dry enough for immediate shipping. Some of these are almost equal in size to our regular \$2.50 size. Others are a little smaller. Price \$1.50 ea. as long as they last. This is a chance to save \$1.00 on a bulb that with good culture will flower next winter and the foliage will be nice if grown in a room well above freezing night temperature and well lighted. Or you can pot it, set it in a frost free basement and shift in early spring to outside garden.

Amaryllis Linn. This genus as constructed by Linnaeus was untenable because he included plants now known to belong to other genera. The invalid name *Hippeastrum* was used by both Herbert and Baker, but now we are scientifically correct when we use the name that has always been most popular. To the word "*Hippeastrum*," literally translated "horse star" we can now say "horse feathers," and forget the word.

Amaryllis are the easiest, the most showy and popular of all bulbs for growing in pots. Equally desirable for southern gardens where they are hardy along the east coast to N. Car. and on the west to Vancouver. In the middle section they may be grown as far north as Ark. and Okla., but note special directions for colder sections.

How To Grow Amaryllis. In the garden, in the deep south where temperatures go only a few degrees under freezing, *Amaryllis* bulbs need to be covered only about an inch or two. Farther north they should be planted about an inch below frost penetration, in protected places and mulched with straw, leaves and/or brush. In Okla., a customer reports a depth of 4" with mulch is safe. Try our "Hardy Hybrids" and don't plant over about 6" deep to top of bulb. 4" deep is better.

In Pots. A bulb 3" or less in diam. needs a 7" pot, and larger bulbs need larger pots. It is better to pot in Nov. or Dec. Better blooms result. But one can pot them as late as March and it is better late than never. The early potted bulbs will start more easily and give better flowers, but in either case the flowers will be better and will show more fully their full quality the second year.

The best potting soil is a rich sandy loam. If not sandy use a friable loam and add sand. To this add an equal quantity of well screened and well rotted dairy manure and leaf mould. Use no fresh or partially decayed manure and no peat or sphagnum. One tablespoonful of bone meal to each pot is recommended. Mix all ingredients thoroly.

In potting the bulbs, carefully preserve any living roots, even remnants. Clean but do not scrape the base of the bulb and dust the moistened surface of base and the roots with Rootone. If there are no roots, coat base of bulb with Rootone, which will hasten their formation.

Pot the bulb two-thirds above surface and water enough to settle soil. After this keep the soil only slightly moist until growth starts, then gradually increase. When first potted set them in a cool, light room but not in sunlight.

The best temperature now is not over 50°. The bulbs must have sufficient time to form a good root system under these conditions. If placed in a warm room and exposed to the sun, top growth will be made before roots, and the results are poor flowers or none.

When you are sure that roots have formed, but not before, water the plants as directed with (or without) Vit. B-1. But be sure to leave the bulbs a sufficient length of time in a cool room. They need this period of dormancy and sufficient time to make a good root system. Many fail because they try to force bulbs before they have rested and have made good roots. If you get a poor flower it may be because the bulb had no roots and had only the sustenance stored in the bulb from which to make flowers. Lack of a good root system to nourish the flower will affect the quality of the flower in every way—size, substance and even color. So, don't remove pots from the cool room too soon. Wait until they demand it by top growth. Then bring the pots by easy stages to a temperature of 60°, then about 65°. Day time temp. should never be much over 70° for the best blooming.

After flowering the bulb has shrunk and a long period of growth is necessary. If good growth is made at this important stage, the bulb will become much larger and offsets may be made. Keep them growing as long as possible. When the weather is warm outside the pots may be plunged in the garden. If rim of pot is sufficiently below soil surface the roots may emerge and add range to the root system. Or better still, shift the bulb and the unbroken lump of soil to the garden. Water liberally during growth and when in good growth use manure water or mulch with manure. This is good advice for pot grown bulbs as well, but don't give heavy feeding to a sick or starved bulb. Plants, animals and people must have enough vigor to digest and assimilate food. If they do not have this, it becomes a poison.

Keep the bulbs growing as long as they will grow. When the foliage begins to yellow, about Nov. usually, one may reduce water, and give them a rest. Store pots in a cool room as for starting.

Usually the summer's growth will have increased the size of the bulbs sufficiently to require shifting to a larger pot. The new pot should be large enough to accommodate all the roots. Do not remove or injure any of the roots and contrive to distribute them thruout the soil.

When repotted, water at once to settle soil around the roots. Thereafter repeat the procedure followed when you planted the dry bulbs. But your bulbs are now much better bulbs. They are not dried out and they have or should have many roots. If kept too wet or too warm while dormant, the roots may rot. But if you handle the bulbs carefully you may expect more, larger and better flowers the second year. With experience you may become skillful in having flowers even by Jan. 1 and others up to May 1.

I am frequently asked why the inquirer's bulbs do not flower. Perhaps they have flowered the first year after their purchase but not thereafter. Some state their bulbs become smaller each year. These results inevitably follow wrong culture. Flowers in the spring are sure to result if good growth was made in the preceding period. If you have trouble in getting good growth in pots, be sure to try shifting to the garden after flowering.

There is no such thing as the Red Fire Disease of *Amaryllis*. Nor is it "ketching." The red pigment or rust results from decay of the *Amaryllis* tissue of any part of the plant. It is the normal reaction of the *Amaryllis* tissue to any injury or bruise and may be caused by one's shoes, garden tools, cut worms or other insect bites, sunburn or frost, cloddy or gravelly soil, too great acidity of the soil, contact with soil sulphur or chemical fertilizer or even too much fresh manure. It often appears in a very mild form in stored bulbs as the result of decay or oxidation of the outer tunic of the bulb.

None of these things are of grave importance. Even a healthy man may sneeze.

But when a bulb is really sick the red rust is excessively produced and this symptom should not be overlooked.

Check on pot drainage, soil, and all conditions.

When a bulb is infested with narcissus fly, dig out the grubs and coat wounds with tree seal and replant. Do not treat *Amaryllis* wounds with sulphur. It is too acid and is therefore a poison.

Do not plant *Amaryllis* too close to trees or shrubs. They do not compete well with roots of such robust plants.

How to judge the quality of the flowers of *Amaryllis* hybrids. The perfect flower of the Leopoldi type should be 5" to 8" across. The petals should be well rounded and broad, overlapping each other, no twisting of petals, and they should form a wide open, flat flower. The texture should be smooth and firm, of good substance. The tube should be short. There should be little or no green in throat but the species Leopoldi contains considerable green. There are few hybrids that do not contain some green. Very few are perfect in every respect.

There should be no dull colors, like brick red. But colors should be bright and of every imaginable tone within the range of this genus.

Self colors are desirable to go along with stripes and other variations. But it is difficult to get other than red selfs and these are unusual. A few of our Select Strains, American Hybrids are pure red, scarlet, rose or pink selfs. But they are few and not separately labeled. Don't order self colors or any colors except as listed.

Please note. There is no quantity discount on *Amaryllis* except as noted with listing.

A. Psitticina. Species from S. Brazil. Large bulb and plant. The large flowers are green tinted with carmine lines radiating to the carmine edges of petals. The effect is of a very pretty red and green *Amaryllis*. But the green here is attractive. Here this species flowers in winter and is a free bloomer. When well established in a pot this species will have foliage thru the winter. A cool house or room is best. Valuable in raising hybrids when seeking winter bloomers. \$7.50 each. This should be ordered early. Late orders are likely to get bulbs that are thru blooming.

A. Sibyl Houdyshel. This is a Burbank origination, purchased by me in 1912. It seems to be the only one of his *Amaryllis* originations that are still in existence. We can offer this only at long intervals as named varieties must be increased vegetatively, a slow process and an expensive one. We run out even of *Amaryllis Johnsonii* also and can list only occasionally, and *A. Johnsonii* is a 150 year old variety.

It is well to remember this when one is tempted to purchase named varieties, that are highly praised and sold at prices under \$6.00 to \$10.00. Recently this was tested by an *Amaryllis* connoisseur. He bought several duplicates of named sorts and found there was enough difference between flowers labeled the same to prove they were not of the same clone. Evidently they were seedlings of one bulb produced by self pollinating the flowers.

This is Sibyl Houdyshel, exactly as produced by Burbank. It is a lightly colored, white background. It has a narrow edging of rose pink and is flushed and marked rose pink. It is a very pretty flower but no better than some of the better White Backgrounds. Price \$6.00.

A. Johnsonii. Deep red flower with a contrasting band of white thru the center of the petals. Bulbs and flowers are smaller than hybrids of the present day but it still is a popular, worth while *Amaryllis*. Our bulbs are small, around 2" to 2¼" diam. I cannot guarantee all to flower but I think most of them will. Buy if you want to get a start, with this understanding. It is an easy to grow sort. Price 75c, 3 for \$2.00.

Amaryllis Ambigua. Altho listed by Herbert in 1838 as a species, authorities since Baker (1888) consider it a wild hybrid between *solandriflora* and *vitatta*. The flower scape is very tall, strong and erect with 5 to 9 flowers, white with lines of pink. A beautiful, long tubed, lily-shaped flower with rich, exotic fragrance. Plant the large bulbs in the garden, covered 2" or 3" with soil. In pots at least covered. We do not have reports of success with it as a pot plant and therefore we are not too sure. But it does well in the garden in the south and probably could be grown in large pots. It is somewhat eccentric. We have known bulbs to lie dormant a full year without foliage but remaining sound. We send only fresh dug bulbs with roots. Price, \$2.50.

A. Hybrids, Select Strains. These are the best American hybrids, of Leopoldi ancestry. Many *Amaryllis* sold are chance seedlings grown from seed collected in the field. These are likely to produce the sturdiest bulbs. From a vegetative standpoint they are the best. But for the most beautiful

flowers, breeders select the best parents having the most beautiful flowers, grow them in a greenhouse and cross them by hand. Our Select Strains are produced thus.

Color Classes. These are named from the parents. When they first bloom, off colors are removed or "rogued" out. They are again rogued the second year. Nevertheless, the color classes are only approximately correct. Many off colors are missed when rogueing. There is also a wide difference in opinion as to color. One calls a flower pink. Others may call it rose. Therefore, we do not guarantee the color but we do exchange them if the customer is not satisfied. Seldom, however, is a customer willing to part with a bulb of this strain, even tho it be an off color. The following color classes are as selected and named by the originator. When you get a wrong color and do not wish to keep it, notify us at once and await instructions.

This season, we have few 2½" bulbs of assorted colors. They are not assembled. Do not order this size from old catalogs. But we have a very few hundred that are slightly smaller, but should flower and plenty large sizes which we offer at very modest special prices since we lack the standard 2½" bulbs.

A. Select Strains. These are Howard and Smith hybrids and very good. They are mostly about 2¼"-2½". A few are slightly smaller or larger. They should all flower. We will ship recently dug and slightly dried bulbs so that you will have the advantage of living roots. **Assorted Colors**, 75c ea., 3 for \$2.15. \$8.50 per doz. **Red Shades**, 90c ea., 3 for \$2.50. \$9.75 per doz. **White Background**, 85c ea., 3 for \$2.40. \$9.35 per doz. Please note. There are more than the usual number of fine colors in these (the best since before the war) and the two color classes have a good many off colors but so fine, I think you will not complain. In both classes you may find a few self colors or a few red, scarlet or rose. Because they are good, and the mixture is admitted in advance, there will be no return privilege on these.

Select Strains, Large Sizes. These are different lots from those sold last fall. Those delivered in the fall were individually staked when in flower with color indicated by a tag for each bulb. There was little chance for an off color to be included. The following are offered under the color classifications of the originators, thus there may be some off colors. We are allowing for this by revising prices down.

Select Strains, Assorted Colors. Large sizes 3"-3¼", \$1.35 ea. 3 for \$3.90. 3¼"-3½", \$2.00 ea. 3 for \$5.75.

Select Strains, White Background. Large sizes. 3"-3¼", \$1.75 ea. 3¼"-3½", \$2.25 ea.

Select Strains, Red Shades. Large sizes. 3"-3¼", \$2.00 ea. 3¼"-3½", \$2.50 ea.

Select Strains, Scarlet Shades. Large sizes. 3"-3¼", \$2.00 ea. 3¼"-3½", \$2.50 ea.

Select Strains, Carmine Rose. The White Backgrounds and most off colors have been removed from these. I would not claim all colors to be Carmine rose but rather all shades found in the rose, such as rose pink, purplish rose (American beauty rose), salmon rose and orange rose. They are at least all fine desirable colors. I consider these to be the finest colors we have to offer this season. Prices, 2½" to 3", \$1.35 ea. 3" to 3¼", \$2.25. 3¼" to 3½", \$3.00. Over 3½", \$4.00.

A. Houdyshel's Hardy Hybrids. Do not be misled by the use of "hardy" to describe them. They are not winter hardy in Minnesota or the coldest states. But they are the toughest, hardiest Amaryllis that we have tried and planted outside in a protected place, with 4" of soil above the top of bulb, with the addition of a heavy mulch of straw and leaves they easily survive the winters in Oklahoma.

Possibly with a pile of brush above the mulch they might be wintered in the garden even farther north. There is no doubt that this strain extends the northern boundary which limits Amaryllis hardiness.

This is an extremely vigorous, rapid growing and multiplying strain and equally prolific with flowers. Most of them are similar in color, orange scarlet with white throat and green keel. An ideal strain for outside planting and landscape effects. Their bright vivid color "hits you in the eye." Altho not an

exhibition type, many will like them in pots, where they are easier to grow than the more aristocratic hybrids, and their bright cheerful colors in Feb. and March will be most welcome. Price, 75c ea. \$7.50 per doz. \$50.00 per 100, prepaid.

Amaryllis Seed. We had a small crop last year and expected to sell out in the fall. On the contrary we still have a fair supply which we will close out at 50 seed for 50c. These are all the Select Strains. See directions for growing seed in the following paragraph.

Plant Breeding is an interesting science and art. Undertaken as a hobby, it has often resulted in fame. It will involve and develop great skill, ideals of beauty, good taste and intelligence. I suggest you start with our Select Strains. Get several bulbs and use the pollen only from those you like the best. Cross pollination is easily accomplished by placing the powdery pollen borne by the six stamens on the stigma in the center. The stigma when ready for pollen will usually be opened into three parts. When the seed pod is ripe it bursts open and may be removed and dried. Plant the seed (soon) in a fine sandy loam containing plenty of humus. Do not use peat. Cover seed about $\frac{1}{2}$ ". Seedlings may be grown in pots in house or greenhouse where they will continue to grow all year without a dormant interval until they flower. Usually this requires 2 to 3 years. In the warm south they can be grown outside under the half shade of lath. But frost usually destroys foliage in winter and cool nights interrupt growth, slowing development.

Brunsvigia rosea, *Lycoris aurea*, *purpurea*, *radiata*, and *squamigera* and all the *Nerine* species can be moved about June to July. Unfortunately too many people do not like to work in the gardens in the summer, especially to plant bulbs. When we list them in the spring we sell too few to pay for the space used in catalog altho that is the very best time to move these bulbs. If you are an exception please order these items from our last fall catalog or any former catalog and request they be sent about July 1.

Clivias. Altho easy to grow and to flower by the amateur they will always be classed with the aristocrats of flowering bulbs, because the flowers easily place them there. They increase so slowly by division that the chief method must be thru the freely produced seeds. But *Clivias* require at least five years and usually seven, to flower from seeds. This time involves expense. They can never become very cheap.

Clivias have evergreen, strap-like foliage somewhat resembling that of *Amaryllis*. The flowers are produced in umbels of 10 to 25, in rich and exquisite tones of orange, in March and April. When not in flower the deep rich green foliage and later the red fruits are most ornamental.

Culture. They are usually grown in pots, even in the south, as more perfect foliage is thus possible, and when in flower one plants them in the house. We grow them in a lath house, lath spaced $\frac{1}{2}$ " apart and in garden under Avocado (evergreen) trees, directly in the soil as they are often grown in Calif. When grown thus they will make very large clumps. They must have shade with only a few flecks of sunshine, but plenty of light and air.

Clivias must never be dried off or allowed to lose their foliage. Keep them well watered after flowering, all summer and fall. Liquid fertilizer occasionally helps. When growth ceases in late fall rest them by giving them less water. But keep moist enough to prevent wilting of foliage. At this time they should have a cool room with temperatures from above 32° to not much over 50°. Pots should be 8" for a small plant up to 12" for larger. As they grow and increase, do not divide but shift to larger pots. Drainage must be perfect. Potting soil is described under "General Culture Directions." pH 7 is about right. One cannot guarantee a *Clivia* to flower the first year after moving tho they usually do.

The foliage of our *Clivias*, grown outside in the ground, will not be as perfect as that of pot grown plants. But when potted, they replace the old foliage in a few months and become specimen plants. Do not remove any roots.

***Clivia miniata*.** Wide open flowers of soft yellow orange. Hardest, \$2.75.

***C. miniata* hybrids.** Similar to the species "*miniata*" in foliage, hardiness, wide open flowers, etc., but there is some variation in color and form of flower. Most of them are in light orange tones. A few are dark and a few have a white throat. Do not express your color preference for any *Clivia*

hybrids as we cannot tell the color from the plant. We grow these hybrids in a lath house but *C. miniata* species and some other species and hybrids are under Avocado trees. Not one of those outside was frozen or seriously injured by the last winter's freeze, when temperatures went to 20°. The *miniata* hybrids, in a lath house which we considered a protection were a 75% loss. Evidently the lack of air drainage was the cause. We now wish to close out all in this lath house. There are probably less than 25 blooming size plants and they are on the small side and probably not all will flower this year. Price of these, \$3.00 ea., a reduction of 25% under last year. Medium size plants, price \$2.00 ea. Small plants, \$1.00 ea.

C. nobilis hybrids. These are much finer and better *Clivias* than the *miniata* hybrids. They have wider foliage. The flowers are larger and usually darker in color. We priced these in our fall catalog at \$6.50 reduced from an old price of \$10.00. Because of our lack of *miniata* hybrids, we again lower. Price \$5.00 ea. No quantity discounts.

Crinums are large bulbs and plants. They are indispensable in southern gardens for landscape effect among shrubs and trees. The flowers are useful for cutting and should be grown by all florists who must grow their own flowers. Only *C. longifolia* is quite hardy. *Crinums moorei*, *Powellii alba* and *Cecil Houdyshel* are only a little less hardy and can be grown up to southern Ohio, Mo. and Kan., if planted deep and mulched over winter.

Grown among trees and shrubs, in combination with Daylilies, true Lilies (*Liliums*), etc., one has a permanent planting that need not be dug up or divided for many years. Other bulbs like colored Callas (also shade loving) that are usually dug and stored in winter may be interspersed. All the above thrive with any good soil. A heavy mulch of manure during summer is excellent for *Crinums* and as a mulch you can use any kind and even fresh, rather liberally but experiment as to the amount.

In the deep south, plant *Crinums* shallow, only a few inches deep. In the north deep planting up to 8" or more is necessary for the hardier sorts as the bulbs must not freeze. Altho they like a little shade, nearly all do well in full sun, except *Moorei*, which must have shade.

Crinums succeed in pots or tubs, but they are too large for small quarters. The pots may be stored in basement over winter, placed outside in summer.

C. campanulatum. Belongs to the "Milk and Wine Lily" type. That is, the flowers are white with a bright rose stripe thru center. \$1.00.

C. Cecil Houdyshel. Flowers, deep rose pink. One of the best hybrids, all qualities considered. It is the same cross as *C. Powellii* but is much larger, more robust and instead of flowering in but limited period it is almost a perpetual bloomer. Experts consider this the best *Crinum* hybrid. Small bulbs. \$1.00. Blooming size, \$1.75. Very large bulbs, \$2.50.

C. Ellen Bousanquet. Most outstanding. It is most surprising to see a *Crinum* with such dark, glowing wine red flowers. Very vigorous and easy. Jumbo, \$1.50. Large, \$1.00. Medium, 60c ea.

C. erubescens. "Milk and Wine" type. The center stripe is red-purple, 50c ea. Jumbo, \$1.00 postpaid. Extra large jumbos, 75c, 6 for \$3.75 by express f.o.b.

C. H. J. Elwes. Pink flowers of unusual beauty. \$4.00.

C. longifolia alba. (Syn. *Capenese alba*.) White lily-shaped flowers. This is the hardiest species, surviving the winters with protection if planted deep, as far north as Ohio. Better than "Rosea." 50c. Botanists now call this *C. bulbispermum*.

C. Louis Bousanquet. Very free flowering thru an unusually long season. Pink flowers on a very tall, erect scape. 50c.

C. moorei. Large pink, bell-shaped flowers in the fall, freely produced. The long neck of the bulb surmounted by rotated leaves gives the plant great decorative value. Requires shade. Nearly as hardy as *longifolia*. \$1.00 ea.

C. powellii alba. Extra fine pure white. One of the most valuable and beautiful *Crinums*. 50c ea. Jumbo, \$1.00 ea.

C. Virginia Lee Seedlings. We have not had enough stock of Virginia Lee or of its seedling Gordon Wayne to list for several years. This lot comprises seedlings as far removed as the fourth generation but are all similar. They range in color from pure white to heavy pink markings. All are as good and some are better than Virginia Lee. While much like Virginia Lee they must

not be given this name. The buyer is entitled to name them if desired. They must be grown in the shade. Price \$2.00 ea. Small bulbs 50c and \$1.00 ea.

Cooperia pedunculata. Texas Rain Lilies. Related to Zephyranthes but larger. White flowers, bloom profusely after each rain or irrigation in late summer. Hardy to So. Kan. or Tenn. Plant 4" deep or deeper. 25c ea.

Eucharis amazonica (or grandiflora). Eucharist Lily. Star of Bethlehem. First collected on banks of Rio Magdalena, Colombia, S. A. Thus are combined three Biblical names in the lore of this flower. There are about 4 pure white, very fragrant flowers in an umbel, there is a cup in center somewhat like that of daffodils, ismene and hymenocallis. The foliage is beautiful and plant is decorative at all times. The flowers are useful in bouquets and corsages and often more expensive than orchids, and always more rare.

Culture. It is recommended that bulbs be potted in coarse fibrous loam with coarse sand, granular charcoal, a tablespoonful of bone meal, some peat and a little rotted, fine cow manure. Because they need abundance of water when blooming, the drainage material must be sufficient in quantity and perfect in performance. Feed with manure water except when resting. Shaded but some sun is needed to develop flowers. After flowering, give only enough water to maintain foliage and full shade for several weeks. Then gradually increase water and light exposure. If you proceed correctly they flower again. From two to four crops of flowers per year may be had.

I must frankly confess that I have grown few and have flowered them only once. They are strictly a greenhouse or warm room plant and night temperatures should be about 65°. You can grow them with Cattleyas and Saint-paulias.

In Florida, nearly every negro cabin has a gallon can or several on the front porch and they flower well. They grow in perfection in Fla. and it is there that I am getting the largest and finest bulbs obtainable. Price is not considered nor profit as we are selling them to you for \$1.50 ea.

Elisena longipetla. Very rare and lovely Peruvian amaryllid. It is related to the Ismene but the pure white flowers are far more delicate and graceful. Culture like Ismene. It can be forced in pots or grown in the garden in summer. Bulbs stored over winter like Glads. It is hardy in the middle south. This fine, rare bulb should be in every collection of unusual bulbs and we offer at the still further reduced price of \$1.50 and \$2.00 ea. this spring.

Habranthus. Formerly considered as a subgenus of Hippeastrum. When this genus was reorganized, most of the species were placed in Amaryllis and this subgenus became the genus Habranthus. Usually they have a one flowered scape. The culture is about the same as for Amaryllis advena as they are usually fall bloomers and winter growers.

Habranthus brachyandrus. The long tubular flower is very striking in color, lavender pink with a deep purple throat and is quite large. They begin to flower in late summer and continue into the fall. Hence should be ordered early. 75c.

H. rubustus. Baker says the flower is rose red. It appears lavender pink to me. 25c ea. \$2.50 per doz.

Haemanthus. This south African genus is very rare in cultivation. Very few have ever seen one. They are hardy only in an almost frost-free climate like So. Calif. or Florida. In their habitat, the following grow in cool, moist forest glades where there is little sun but plenty of light and where breezes keep the air in motion. These are the famous and rare Blood Lilies of South Africa.

Culture. They should be grown in pots except in climates like Florida and So. Calif. The soil should be equal parts of loam, coarse sand and peat or leaf mould made thoroly fine. Drainage should be perfect. A tablespoonful of bone meal to each pot is useful. H. Katherinae should be planted just under soil surface; puniceus, coccineus and carneus covered about 1" to 2". The bulb of albiflos may extend about half above soil surface. An abundance of water at all times when growing is required but rather on dry side when dormant. Additional culture information is given with species. All are natives of South Africa. All are easy to propagate from the freely produced seed. Grow them as advised for Clivia seed.

Haemanthus Katherinae. The bright red flowers fill a large rounded

umbel often 10" or more in diameter. I have counted nearly 125 in an umbel. The broad banana-like foliage droops gracefully into an umbrella form. Scarlet seeds follow the flowers. A plant in flower is an unforgettable sight of tropic beauty. The entire plant is of quite large proportions, the foliage and flower umbel reaching a height of 30" to 36". Introduced from Natal in 1877, they are yet very rare. Give them a large pot, about 12". Plant with top of bulb at soil surface.

Katherinae is almost evergreen but usually tops either die or decline in January. About that time, the neck splits due to pressure of new growth. We can usually deliver from Jan. until late March but early ordering is advisable. We usually delay shipment by mail to north when there is danger of freezing. Express is always safe. *Katherinae* should never be entirely dried off but less water is needed in winter as it is a summer grower. Former prices were \$10.00 and \$12.50 ea. We reduced these prices and are now again reducing them for Jan.-Feb. delivery. Price, good flowering size for \$5.00. Top size, \$7.50. Order well in advance as we sell out early.

H. albiflos. Two or more rather stiff erect evergreen leaves. The small white flowers, 100 or more, are in a dense umbel. A rare and unusual plant. It is evergreen and must never be dried off. But most growth is made in summer and more water is needed then. Flowers here in late fall. Leaves burn badly in sun. \$2.00.

H. coccineus. This is the true Blood Lily altho all *Haemanthus* are referred to as Blood Lilies even tho one has white and another flesh pink flowers. This very rare *Amaryllid* usually has only two semi-erect leaves. They grow all winter after which they should be entirely dry until about Aug. Then watered only a little at first. The flower scape appears, preceding foliage. This scape furnishes part of the floral display, being marked by contrasting red spots on a bright background. The 4" umbel consists of very numerous small, densely placed blood red flowers. These are followed by the fruits which turn red upon ripening. Each fruit will contain one or more large seeds. In the south plant the bulbs with top even with soil surface. Half shade. Easy in pots where half of bulb may be above soil. Stock very limited. Order early and reserve your bulb. \$3.00 ea. Jumbo size that should give 2 or 3 flower scapes and a lot of seed, \$4.00.

H. carneus. The two leaves are prostrate. The flowers are larger and less numerous than in *H. coccineus* and are flesh colored and not striking in appearance. The growth habits are similar. It is valuable mostly to collectors of unusual plants and for crossing with *H. Katherinae*, *H. coccineus* or others to get new colors. Moisture does not harm this species when dormant. Delivery late spring to about Aug. 1. Stock limited as on all *Haemanthus* and it is best to order in advance. Price \$2.50.

Hermerocallis. Daylily. The flowers range in color from dark bronzy red, thru pastel tones of pink to orange and yellow. They are borne on a branching scape well above the foliage.

The Greek name, meaning "beautiful for a day," refers to an individual flower. But these are so freely produced, thru a long period, that "beautiful every day" would be more apt, as a collection of several sorts show masses of flowers thruout the spring, summer and fall and here we often have some winter flowers. The modern sobriquet of "The Perennial Supreme" is well deserved.

Culture. While their beauty is their greatest recommendation, their easy culture and hardiness add to their desirability. I have known abandoned plants here, where we have arid, hot summers, to persist for years. They grow well in full sun. Slight shade is better. If given constant moisture about their roots, preserving this and coolness of the earth with a good mulch, the plants are ideally situated and respond with generosity. They are hardy even in severe winters in the north. They are fibrous rooted, not bulbs, and must be planted at once when received. Altho they can be moved any time, it is better to ship from late fall to early spring.

They are an almost perfect border or landscape plant, never have to be dug and replanted. All that you must do for them is keep the weeds down and water. A heavy leafy mulch helps every way.

In Daylilies, the sepals are colored and petal-like and are an essential part of the floral display.

Hemerocallis Araby. A lovely pastel color, with the effect of bronze on gold dust. 30". Blooms early. 75c.

H. Bagdad. Coppery red over orange veins. Mid-zone of madder brown. Very striking large flowers. 3 ft. June-July. 50c.

H. Bijou. 24". June-July. Orange, overcast with rich fulvous red. 50c.

H. Boutonierre. 36". Rosy peach petals. Grassy foliage. July-Aug. 75c.

H. Calypso. Large, fragrant lemon yellow flowers. Opens in evening. 42". June-August. 30c ea.

H. Cecil Houdyshel. A Dr. Traub origination. A deep crimson with an old copper shade that makes it outstanding in our garden. Slight shade gives better color to flowers. 3 ft. June-July. \$1.00.

H. Chengtu. Brilliant coppery orange-red with carmine mid-zone. 3 ft. July-Sept. 50c.

H. Cinnabar. Cinnamon sprinkled over orange, gold-glistening. 30". July-Aug. 50c.

H. Crown Prince. Color like Mikado. 30". June-Aug. 25c ea. Per doz. \$2.25.

H. Dauntless. Cadmium yellow. Fulvous red blended in mid-zone. Pastel effect. 30". June-Aug. 75c.

H. E. A. Bowles. 48". Large ruffled flowers of deep red-orange blended with gold. Early. 75c.

H. Evangeline. 40". Large rosy flowers with wine purple eye zone. Early \$1.50.

H. Florham. Still popular old hybrid. Large, golden yellow. May-July. 50c.

H. Florida. Pastel shades. Light chrome yellow with rose blush. Darker mid-zone. July-Aug. \$1.50.

H. Fragrance. A fine deep yellow. Fragrant. \$1.00.

H. Iris Perry. 36". July-Sept. Orange-bronze. 50c.

H. Kanapaha. 36". Clear cardinal red. The best red that I have seen. June-July. \$6.00.

H. Kwanso. The Double Orange Daylily. 25c ea. 3 for 50c.

H. Linda. Petals, ruffled golden yellow, flecked with cinnamon, and a rose zone. Sepals, pure yellow. Very lovely. June-July. 50c.

H. Mandarin. 48". Lemon yellow. June-July. 50c.

H. Margaret Perry. Brilliant orange-scarlet. 4 ft. July-Aug. 35c.

H. Mikado. Orange with mahogany-red zone. A favorite. 3 ft. May-July. 35c.

H. Modesty. 36". Large, pale creamy yellow. Our nearest to white. 75c.

H. Nubiana. Dark chocolate-red with yellow stripe in petals. One of the darkest varieties. 2 ft. 60c.

H. Old Vintage. 54". Wine-purple with yellow throat. Ruffled petals. Very profuse. April-May. \$1.00.

H. Patricia. Pale yellow. Large fragrant flowers. 30". July-Aug. 50c.

H. Purple Waters. 36". Wine-purple with ruffled petals. May-June. \$1.50.

H. Radiant. Rich orange. 42". June-July. 50c.

H. Rajah. Deep English red with darker red veins. Garnet red eye-zone. 40". July-Aug. 75c.

H. Rosita. Near carmine-crimson with coppery red tone. 36". Part shade preferred. \$1.00.

H. Rosalind. Superior clon of *H. fulva rosea*, famous pink Daylily. A very delightful pastel shade of rosy pink. \$3.00.

H. Serenade. Rose-fulvous markings on apricot cream. Faintly overcast darker. 4 ft. June-July. 75c.

H. Sibyl. Dark purple-red petals, lighter sepals. \$2.00.

H. Soudan. Lemon yellow. Broad wavy petals and sepals. 3 ft. June-July. 50c.

H. Spitfire. Seems never to quit blooming in spring, summer and fall. Fiery red with yellow midrib, yellow throat. Small flowers but in great profusion. 2½ ft. \$1.50.

H. Vesta. Deep orange with glistening gold sheen. 30". May-July. 50c.

H. Vulcan. Dark maroon-red. 30". July-Aug. \$1.00.

H. Wau Bun. Large apricot flowers, sprinkled fulvous red. The twisted and curved petals add to its beauty. 75c.

Ismene are no longer placed in the genus *Hymenocallis* but are given a genus of their own by botanists, a more logical classification.

Their large, deliciously fragrant white flowers are most desirable for cutting and are seen often in florists shops. We have large stocks of most *Ismene* altho we lost the major portion of *I. Olympia* in our January, 1949 freeze when temperatures were 20° and cannot list it. We plant very shallow. No doubt if our bulbs had been 6" deep, all would have survived the freeze. But we lost many even of those listed. We have so many *Sulphur Queen* that we are again lowering the price. Our retail price on this is now lower than usual wholesale prices. We want you all to have this fine *Ismene*. We paid \$5.00 per bulb to get a start. They are rapid multipliers.

Culture. In the south where the ground does not freeze to a depth greater than an inch or two, or where this can be prevented by mulching they are quite winter hardy. The bulbs on the border line can be planted 5" or 6" deep. In the north they may be planted outside as early as the ground can be worked and dug and stored in late fall like *Gladiolus*. Or they can be potted about March 1, treated as for *Amaryllis* and after flowering shifted to the outside garden.

Ismenes must be stored in a warm place, 55° to 70°. If stored in a cold place the bulbs will not flower and very often they will rot. Strangely, in the ground this susceptibility to cold is not apparent. But any bulb plant or tree, if well rooted, is less susceptible to frost injury.

In mild climates, plant the bulbs early, 5" deep and where you will want them to stay for several years. They deserve a good rich deep soil and if not sandy it should be made very mellow with mulch, leaf mould or compost.

Ismene Calathina. Peruvian Daffodil. Large white, fragrant flowers, attractively tinted green. The stamens are joined by a membrane to form a cup, like a daffodil. 35c. Extra large, 50c ea.

I. festalis. An *Ismene-Elisena* hybrid, Pure White, very graceful, fragrant flowers. The long narrow petals give a great refinement to the flowers. No white *Amaryllid* is quite as elegant (unless *Eucharis*) as this hybrid, which anyone can grow. Price \$1.75 ea. A few super-jumbo bulbs for \$2.25.

I. Sulphur Queen. Hybrid of *I. calathina* and *I. amancaes*. This rare light yellow *Ismene* should be in every bulb collection at this low price. 50c ea. \$5.00 per doz.

I. Macleana. This is the midget of the genus. The flowers are tiny, perfectly formed *Ismenes* in startling contrast to *Olympia*. The stems are about as long as others so they are useful in arrangements. 25c. \$2.00 per doz.

Collection of 4 var. of *Ismenes*, \$3.25. This collection will excite the interest of every visitor to your garden when in bloom.

Sprekelia formossissima superba. Orchid *amaryllis*. Deep crimson flowers in orchid-like form. Much larger than common type, better color, more flowers. Evergreen. Fine in pots. Culture like *Amaryllis*. 50c.

Tulbaghia violaceae. Small cousin to *Agapanthus*. Mauve flowers produced thruout the year, a true ever-bloomer. Foliage has garlic odor if bruised. An acquisition for pot culture. 25c ea. 5 for \$1.00. \$2.00 per doz.

T. fragrans. This much larger species has a large, true bulb, with glaucous green foliage, 18" long and 1" wide. It has no allium odor. The plant is a profuse winter bloomer in a cool room, with a few flowers in summer. It was introduced to this country only a very few years ago and so far as we can learn, only one other dealer lists it. It has larger fragrant flowers than *violaceae* in the same color. Evergreen. Since it increases rapidly the bulbs are a good investment for dealers or for plant exchanging. \$2.00.

Vallota purpurea. (or *V. speciosa*). Scarborough Lily. This is a hard to find old favorite. Leaves similar to *Amaryllis*. The scarlet flowers, funnel shaped are in an umbel. Flowers late summer usually. This is one of our best *amaryllids* for green house culture. In potting use plenty of drainage. Soil should be equal parts rich sandy loam, peat and cow manure. Add a little sharp coarse sand and granular charcoal if available. Use small pots and shift to larger as necessary. *Vallotas* resent being moved and should not be repotted for several years. They are not safe under garden or field culture and that has almost led to extinction of commercial stocks in U. S. Under culture the plants do not lose foliage and even if they do the bulbs must not be dried off. Keep at least slightly moist when dormant. Only the gift of a friend makes this offering possible. Get them now as we may sell out at \$2.50 ea.

Zephyranthes. Fairy lilies. The smallest Amaryllid, 6"-12" tall. Fine in beds or borders. Hardy in middle south. In north dig and store. They may be grown in pots. Give acid soil, sandy loam with leaf mould or peat. Full sun or slight shade.

Zephyranthes grandiflora. The largest Zephyranthes and the best pink. It is very easy to grow. In the south, its habit of flowering every time it rains in summer gives it the name of Pink Rain Lily. 15c ea.

The Alliae or onions are now included in the Amaryllis Family. The following Alliums are useful as foods as well as ornamental. Culture simple and easy.

Allium schoenoprasum. True Chives. Small clumps, 10c, 3 for 25c.

A. tuberosum. **Japanese Garlic.** Deliciously flavored leaves. Evergreen and probably not hardy in north. 25c. (Try wintering in a pot.)

IRIS FAMILY — Iridaceae

The Iris is the type plant of this family which also includes Gladiolus, Marica, Tigridia and many others that are listed in our Fall Catalogs.

Tall Bearded Iris. The old fashioned name was Iris Germanica, or simply Flags. We thought them lovely, but modern Iris, with their infinite colors, markings and blendings, are scarcely recognizable as their descendants.

We prefer to deliver Iris in June and July as soon as we can after flowering as that is the best time. They can be moved any time of year but they do better if moved then. However we will send, on your responsibility, at any time.

Culture is simple. Plant with roots spread out and rhizomes covered not over 1". They do well in sandy loam but prefer heavy soil. It should be mildly alkaline or at least neutral. In acid soils the results range from unsatisfactory to complete failure. Ashes are often used in some sections to neutralize acid soils, with much benefit to Iris but do not use them in Calif. or where soils are usually alkaline. Do not use manure or other fertilizers. Good garden soil enriched in previous years is best.

Iris bloom better the following spring if allowed to become quite dry and to bake in late fall for a couple of months. When clumps become crowded there are likely to be very few and poor flowers.

"The Iris 400" is our price list of recent introductions. They are the newer and better varieties and truly the aristocrats of Irisdom. The prices range from 35c to as high as \$10.00 but are mostly under \$5.00 each. If you desire this for the purpose of adding to your collection, it is free for a post card request. The price list contains valuable cultural advice and a "Personal Letter" giving some account of the history of improved iris hybrids in California. If you want the price list for this information only, please send 10c.

Airy Dream. 42". Ruffled orchid pink. 40c ea.

Alta California. 48". S. deep yellow, perfect in form. 25c.

Arcadia Blue. Pale blue. Profuse spring and fall bloomer. 25c.

Asia. 48". S. lavender; F. violet-purple blend. Late. 35c.

Attitash. Variegata. S. yellow, citrine and violet blend. F. violet blend. 20c.

Blue Beard. Better blue than parent, Crimson King. Fall bloomer. 35c.

Blue and Gold. Deep gold beard. 20c.

Blue Velvet. 46". Intense, deep violet blue. 25c.

Boadicea. Yellow and pink blend, flushed sky blue in center of F. 25c.

Buechley Giant. Perfectly formed, massive blue flowers; very tall. 25c.

California Blue. 60". Rich blue violet with glowing orange beard. 25c.

Canyon Mists. 40". Pink mauve self colored. Beautiful. 20c.

Cecil Houdyshel. Tall Plicata. White, feathered lavender. 20c.

Cheerio. S. lustrous tan. F. brilliant velvety red. 40c.

China Maid. Blend of pink, gold bronze and rosy lilac. \$1.00.

Cinnabar. Rich velvety deep red violet. 20c.

Claridad. 30". Best, true-blue iris. 20c.

Coronation. 36". Fine, large, deep golden yellow. 20c.

Cucamonga. Tall velvety blue-violet. 25c.

Dauntless. Fine tall red self. 35c.

Delight. Tall, pink and white plicata. 15c.

Depute Nomblot. The perfect Iris. S. copper. Dykes medal. 25c.
Desirable. Very striking white and purple. 25c.
Dolly Madison. 35". Large flowers blended mauve and yellow. 15c.
Don Quixote. 42". Large, blended violet and brown. 15c.
Druid. 36". Red maroon and brown. 20c.
Duke of Bedford. Deep red violet. 15c.
El Capitan. 40". Manganese violet. Largest and finest. 20c.
Eleanor Roosevelt. Dark purple. Free fall bloomer. 15c.
Franceville. 54". S. fawn tinted lilac; F. red purple edged heliotrope. 25c.
Gaviota. Fine cream white, edged yellow. 15c.
Golden Cataract. Deep golden yellow. Most profuse bloomer of all. 35c.
Happy Days. Our largest, tallest yellow. Most desirable. 40c.
Indian Chief. Huge, brilliant red tone, perfect form, free flowering. 25c.
King Juba. Tall. Golden standards and contrasting velvety red falls. 45c.
King Midas. Bicolor. Blended golden buff and garnet brown. 25c.
Lentz Schnee. White, tinted lavender. 15c.
Los Angeles. Tall, large plicata. Snow white, edged blue. 25c.
Loudoun. 30". Yellow lined and dotted with chestnut. 20c.
Louis Bel. Pansy violet and violet purple. 25c.
Mabel Taft. Giant blue bicolor. 25c.
Mary Barnett. 42". One of the best light blues. 20c.
Mary Geddes. Blended soft pink and Pomeranian red. Dykes Medal. 35c.
Mary Gibson. 42". Early Bronze, blended yellow. 25c.
Mary Senni. S. lilac, flushed red brown. F. violet and lilac margin. 20c.
Mauna Loa. Tall, conspicuous. Reddish flowers. 30c.
Melchoir. 36". S. bronze velvet, F. velvety crimson violet. 6" flowers. 20c.
Messaline. 38". Very large. Red brown and red violet blend. 20c.
Mildred Presby. 20". S. creamy white; F. velvety, pansy violet. 20c.
Mirasol. Bright deep chrome yellow. Fine form. 20c.
Mme. Cheri. Large pink and violet blend. 20c.
Mme. Durand. Tan and mauve blend. 25c.
Moneta. Tall, red purple and violet bicolor. Off season bloomer. 30c.
Ningal. Blend of pastel shades in rosy buff. Yellow in throat. 35c.
Numa Roumestan. 36". Intensely red. 20c.
Pacific. 36". Gigantic deep blue. A magnificent early iris. 25c.
Pale Moonlight. Very pale blue. 35c.
Persia. Bright blue, blended with smoky blue, like a Persian rug. Fragrant. 35c.
Picador. Variegata. Gold and red brown. 25c.
Pres. Pilkington. 40". S. buff over gold. F. violet edged brown. 25c.
Purissima. 42". The most perfect white. Gigantic flowers. 25c.
Querida. 44". Blended pastel tints, mauve to white. Fragrant. 15c.
Red Dominion. Deep red. One of reddest. 45c.
Red Embers. Very striking bicolor. S. pink. F. velvety crimson. 25c.
Rialgar. 22". Deep buttercup yellow and bronze. Very showy. 20c.
Rosultra. 40". Early, bright rose. Fine garden effect. 20c.
Sacramento. A giant plicata like San Francisco but edged red purple. 25c.
Sandakan. Tan and purple bicolor. 20c.
San Francisco. 44". Finest, largest plicata. Lavender blue and white. Dykes Medal. 25c.
San Gabriel. 60". Pink lavender. Extra fine. Too early for east. 20c.
San Luis Rey. 38". Large red purple. 15c.
Santa Barbara. 40". Finest lavender blue. Very large, perfect form. 20c.
Sequoiah. 36". Reddish color. F. margined lighter. 20c.
Shasta. 40". Gigantic snow white. Perfect form. Early. 25c.
Sierra Blue. 50". Clear soft blue. Enormous flowers on well branched stems. Perfection. Dykes Medal winner. 40c.
Souv. de Mme. Gaudichau. 36". Dark velvety blue purple. 20c.
Susan Bliss. 40". Magnificent pink toned iris. 25c.
Tenaya. Dark red-purple. Very outstanding. 20c.
Theme. New blend of unusual colors. S. bronze gray flushed lavender. F. bronze-tan and petunia-violet. Fragrant. 50c.

Thos. R. Bacon. Ivory yellow blended gray, violet in center of falls. 25c.

Ute Chief. S. blue violet; F. royal purple. Red toned. 20c.

Valencia. 24". Russet color of a valencia orange. Ruffled. 30c.

Valor. Blackish blue-violet bicolor. Large, rich, fine. 20c.

Wonder Child. Very large, deep pansy purple. Magnificent, profuse. 35c.

Yves Lassilly. Very large white, suffused sky blue. 20c.

Yvonne Pellitier. Pallid blue-violet blending to light violet. 20c.

Collections are usually expected. Our prices are already so much lower than most prices that we cannot make the large discounts that are sometimes made. Since it is likely that a few surpluses may be apparent at digging time we will offer:

Collection. Ten varieties, our selection, each rhizome labelled, and they will not all be 15c sorts. Price \$1.25.

July-August Special. Many ask for a cheap item to fill a large area with flowers. This is it. We will have considerable surplus of Iris this year. In these months we are not so busy packing bulbs. We will send 100 assorted, unlabelled plants, by express collect, for \$4.00 or 500 for \$15.00, 1,000 for \$25.00. Ten or more sorts. Order in advance. We will ship safely but not fancy. No baby ribbon.

Gladiolus

How to Grow Gladiolus. Glads planted Nov. 15 to Mar. 1 in Southern California and thruout the south (a little later in Northern California and early as possible in spring in the east) are reasonably sure to escape the attack of thrips. Our Glad bulbs are especially grown for this purpose, matured early and dug in August. But if you plant recently dug bulbs you will gain nothing; they will continue their rest of three months before starting.

Thrips are very small insects that suck the juices from the plant. They cause the flowers to wither or appear burned, and appear only after weather becomes warm. To avoid the damage thrips do, four measures are effective. Plant early. Plant clean, treated bulbs. Keep them reasonably moist and well cultivated, with no weeds. Dust with D.D.T. or Chlordane.

Recently thrips appear to be becoming resistant to D.D.T. Formerly it controlled them but did not kill all. Two years ago we tried dusting with Chlordane 5%. We had no thrips trouble that year nor the next even without dusting. Apparently it killed all. Our program now calls for 2 to 4 dustings with Chlordane 5% powder beginning when plants are 6" tall. We also dust the bulbs in storage. This kills any thrips on the bulbs and keeps off ants (that may carry in aphids or mealy bug) or other pests.

Chlordane is extremely toxic. When dusting, walk on windward side of plants so that dust is blown away from you. Wash thoroly when thru and brush all powder from clothing. When using it keep the hands away from the face. Keep it off of food plants and away from children or pets.

Our bulbs are Chlordane treated, thrips free. Plant large bulbs 4" or 5" deep; small 3"; bulblets 2". Twice their diameter apart. One can plant two rows, staggered in a 4" wide furrow or closer in a single row. Rows about 20" apart. Alkaline soils produce poor Glads. Soil should be neutral to mildly acid. Leaf mould or peat added is useful. Use no fresh manure, but well rotted manure is good. Top mulch of leaf mould or peat is good.

Keep Glads growing with plenty of water and best culture for about two months after flowering. It is best to dig bulbs in the south, and necessary in the north.

Sizes and Prices. L. means "large," size 1 and 2, 1¼" up in diameter. M. is "medium" and includes No. 3 and 4 sizes, ¾" to 1¼" diam. S. means "small," under ¾" diam. Large and medium bulbs give good long spikes. Small bulbs usually bloom in most varieties and when planted early, given good culture and plenty of water they usually make fairly long spikes. Early planted bulblets often flower. Large bulbs bloom earlier and throw more and longer spikes. **Prices** are for one bulb as elsewhere in this catalog. A dozen, all of one sort, costs ten times the price of one unless otherwise stated. Six are sold at dozen rate. Don't forget **Sales Tax** in California.

Substitution. If you order early there is likely to be no substitution, but

when out of a variety we send another as nearly like it as possible and of equal or greater value. If you do not approve this, request no substitution.

In the following list we quote L., M., and S. size. All sizes give good flowers under good and correct culture but the smaller sizes do not make quite as long stems as the larger and they flower later. Thus you may plant all three sizes at the same time and have continuous bloom for several weeks. Last year, by planting all sizes at four intervals we had continuous bloom from April to October and a few were even later.

These are all top quality new varieties that we consider the best in their color. We have a large stock and we are making the prices lower on most of them than any one else. You can have a lot of Glads for a little money.

Burma. Large, very deep rose, deeply ruffled. Very many flowers open at one time. One of the most beautiful. 20c each.

Capehart. Light salmon rose. 6 to 8 open. Early commercial cut flower. 6c ea. 60c doz. Per 100, \$5.00. 500 for \$20.00. \$35.00 per 1,000. M. 45c doz. \$2.00 per 100. S. 25c doz. 100 for \$1.00. Bbts. ½ pt. \$1.00.

Chaumony. Beautiful, bright rose with silver edge. Much like beautiful Oregon Rose, which is a weak sort here. But Chaumony is a good grower. 10c ea. \$1.00 doz.

Ethel Cave Cole. Very large soft pink flowers, as many as 10 open at one time. In any flower market this, when offered, is the favorite of florists. A little better than Capeheart but a few days later. L. 6c ea. 60c doz. Per 100, \$4.75. Per 500, \$20.00. Per 1,000, \$35.00. M. 45c doz. 100 for \$2.00. S. 30c doz. 100 for \$1.00. Bbts. ½ pt. \$1.00.

Golden State. Said to be everything desired in a yellow glad. Introduced as a yellow Picardy. Sizes No. 2 and No. 3, 50c ea.

H. B. Pitt. Immense orange pink blending to deep cream throat. An expert says he likes it better than Picardy and it does not have Picardy's fault,—looseness in the calyx. Strong healthy grower, rapid multiplier. You can win in the show with it. Large, No. 1 bulbs 35c ea. No. 2 and 3, 25c ea.

Los Angeles. Now chiefly grown in greenhouse or in very mild climates for winter flowers as it likes cool weather and is not good in hot weather. Very vigorous. I've seen 100 flowers produced from one large bulb. To do its best plant 6" apart and give much water. A prominent professor of floriculture advises using it in breeding because of its strong, hardy nature and fine color. 5c ea. 50c doz. \$3.50 per 100.

Margaret Beaton. Large white with scarlet throat. Standard cut flower sort. L. 6c ea. 60c doz. Per 100 \$4.75. M. 45c doz. 100 for \$2.00. S. 25c doz. 100 for \$1.00. Bbts. ½ pt., \$1.00

Mother Kadel. One of the finest pure yellows. 8c each. 80c doz.

Pacifica, very early, tall large white, much used by florists. Healthy and easy to grow. 7c ea. 65c doz. Per 100, \$5.00. M. 45c doz., Per 100, \$2.00. S. 30c doz., Per 100, \$1.00. Bbts. ½ pt. \$1.00.

Red Charm. Rightly named, a charming red of pure color, no markings. An outstanding exhibition and commercial flower. 10c ea., \$1.00 doz.

Red Unknown. Fine vivid color, tall spikes and very early. The label was lost but it is so good and sells so well as a cut flower that we continue to propagate it. Because unnamed we price it low. L. 7c ea. 65c doz. \$5.00 per 100. M. 45c doz. 100 for \$2.00. S. 30c doz. 100 for \$1.00. Bbts. ½ pt. \$1.00.

Snow Cruiser. Pure white, 7" flowers. Up to 6 ft. tall. I don't believe I've seen a larger Gladiolus. Propagates rapidly and even bulblets bloom. This is new and still high priced, but valuable to breeders and those who exhibit at shows. L. 90c ea. M. 75c.

Snow Princess. Usually accepted as the best pure white commercial gladiolus. 8c ea. 75c doz.

Yellow Perfection. Tall, medium yellow. 7c ea. 70c doz.

Assorted Varieties. This is an accidental mixture and thus not a balanced mixture. For the same reason it may contain anything. Sizes 1, 2 and 3, 5c ea. 50c doz. \$7.00 per 100. \$25.00 per 1000.

Breeding Gladiolus. Many an amateur has produced a new variety of high merit, that has won show prizes and become popular. Some have even broken into the business of growing in this way. But anyway, its fun and fun is fun-

damental. We are offering only a few of some very new varieties. We especially recommend the use of some of the cheaper sorts for seed parents such as Ethel Cave Cole, Los Angeles, Red Charm, Snow Princess, etc.

Other Bulbs of Iris Family

Marica gracilis. Walking Iris or Apostle Plant. The fugitive 2" flowers, white and blue with yellow and brown marking in center, are lovely. The flowers are followed by a small plant at end of scape. These become heavy and bend over to ground and take root, thus walking away from mother plant. **Culture.** Give nearly full shade, plenty of water, never drying out. Tender tropical but grown in pots in north. Soil should be at least half leaf mould or peat. 65c ea.

LILY FAMILY — Liliaceae

The type species is *Lilium*, or true Lily. Many call *Crinums*, *Callas*, *Cannas*, or any bulbs "Lilies," but this is an error.

Gloriosa. Climbing Lily. The flowers resemble true lilies but surpass most of them in their gorgeous beauty and high coloring. They propagate by tubers instead of bulbs. The stem is branching and heavy and must be supported.

Culture. They must have sandy soil, full sun or slight shade, plenty of water, perfect drainage. We usually plant before March 1, but sometimes as late as May. They need a long season. Plant 4" deep. Horizontal position. In the north they may be started early in pots and shifted. Do not break earth ball when shifting.

Gloriosa rothschildiana. It deserves the name **Glory Lily**. Very vivid colors, red with yellow markings, turning later to deep red and then deep rose. 4 to 6 ft. tall. \$1.25 and \$2.00 ea.

OXALIS FAMILY — Oxalidaceae

From the standpoint of growth habits, there are two types, winter growers and summer growers. A few even grow the year around, like *Crassipes* and are evergreen and everblooming. They are low growing plants, very floriferous and their bright colors are most cheerful. They are so inexpensive that you should not deny yourself the pleasure of growing a full collection.

The following grow in the summer. They may be grown in pots and if desired, shifted to garden in spring. They flower all summer if kept moist enough.

Culture. Plant about 2" deep 2" or 3" apart. Very large bulbs may be deeper and farther apart. They may have full sun or half shade but they must have some sun and plenty of light for flower production. Flowers close at night and on dark days. Keep well watered. They grow well in almost any soil but sandy loam full of humus is very favorable. In pots, plant the same distance apart and according to size. Thus a 4" pot may contain from one to 6 bulbs.

Oxalis brasiliensis. The bright magenta flowers with a darker throat and veins are very attractive. I have not entirely solved the culture of this Brazilian species. It failed to grow well in the field but persists in a lath house where it mysteriously got started. Apparently it will grow the year around and probably would be an everbloomer as a house plant. But Calif. winters are too cold for bloom and sometimes the foliage disappears. Larger bulbs 75c ea. Tiny bulblets, 2 for 15c, 4 for 25c. Stock very small, hence high priced. You may be able to find them more reasonably priced.

O. crassipes. Tuberous rooted. Bright rose flowers. Evergreen and everblooming and very free blooming. Can be moved any time of year but after division, they start slowly, so be patient and do not become indignant because I "sent you a dead tuber," as one "lady" did. 10c ea. \$1.00 doz.

O. crassipes alba. Pure white flowers, 25c ea. \$2.00 doz.

O. Deppei alba. Small white flowers, off-white. Singly they are inconspicuous but massed they make a lovely deep green mat of clover like foliage. Authorities differ in opinion whether this oxalis or white clover is the true shamrock. Probably both are. Jumbo bulbs, about right for a 4" pot of "shamrock," 15c. Medium sizes, 5c ea., 50c doz. Very small bulbs that will do for the garden, 30 for \$1.00.

O. lasiandra. My favorite of all *Oxalis*. 7 or 8 leaflets, bright rosy carmine flowers that keep on coming into late fall. There is confusion in nomenclature, but this is the true species. Many sell *tetraphylla* as *lasiandra*. L. 2 for 15c. 75c doz. Small bulbs but good bloomers, 5c ea. 50c doz.

O. tetraphylla. 4 large leaflets crossed by purple band. Lovely rosy carmine flowers. Our bulbs are correctly identified. 8c ea. 2 for 15c. 75c doz.

THE CALLA LILY FAMILY — *Araceae*

This family contains the so-called Calla Lilies or *Zantedeschias*, the true *Calla palustris*, Fancy Leaf *Caladiums*, *Sauramatum*s, *Amorphophallis* and many others. Even *Monstera deliciosa*, which has an edible spadix, belongs here.

Culture. *Zantedeschias*, Pink, Yellow and Spotted Leaf Callas become dormant in late fall and should not be potted before Dec. 15. If potted on that date very little water must be given or they may rot. If not potted until Feb. 15 they have had a longer rest and start more easily. For potting read our "Potting Directions" in front pages of Catalog. Use rich sandy loam soil with an equal amount of sifted leaf mould or half as much peat. Set bulbs 2" deep.

They may be planted in the garden any time in the deep south and in the north as soon as danger of heavy freezing is past. Plant 3" deep in the garden in half shade.

Z. rehmanni. Dark rose pink variety. 50c.

Z. rehmanni var. **elegans.** Light pink, 50c.

Z. elliotiana. The yellow calla. A few growers quit and they are now higher in price and harder to get. We are able to offer only 150 tubers. They are beautiful. Please save your seed and plant them. Easy to grow. Let a little sunshine in (but toned down) for better blooming and strong foliage. 35c ea.

Sorry, no *Dracunculus*, *Sauromatum* or *Amorphophallus* this year. Better buy Fancy Leaf *Caladiums* instead.

Fancy Leaf Caladiums are the most gorgeous of all foliage plants. Every leaf is a flower, more richly colored than roses, tulips or tigridias. I have been growing ornamental plants for more than 50 years. I have never seen any plants so gorgeous in coloring as the Fancy Leaf *Caladium*. They are the richest of all and if you deny yourself the possession of a few or a full collection you must have those stern inhibitions which only martyrs usually possess.

Culture. When bulbs are received, if you wish to store awhile before planting, they should be tightly packed in pure, dry peat and stored at a temperature of at least 60° minimum and 70° is better. We have kept them thus as late as June 1, but examine about May 1 and if sprouted, plant at once.

Caladiums like heat and must have it when starting. Their best starting and growing temperature is 85° or higher. If you can possibly give 85°, day and night, do so. However we start them very successfully in the same greenhouse with *Saintpaulias*, *Achimines* and *Cattleya* orchids and 85° is a little too warm for these. Usually the night temp. is about 70° and we never fail to start and grow the *Caladiums*. But probably at 85° they would start and grow more rapidly.

The soil usually recommended is $\frac{1}{3}$ sandy loam, $\frac{1}{3}$ well rotted dairy manure made fine by rubbing or screening, $\frac{1}{3}$ leaf mould with a little small sharp gravel to improve drainage. Granular charcoal is a help as it keeps soil sweet. A slightly rounded tablespoonful of bone meal is a good fertilizer.

Houdyshel method. But I have my very best success in starting and even in growing *Caladiums*, *Gloxinias* and *Achimines* in pure peat. I often mix in some sphagnum. So far as I know no one else uses this method and for convenience of referring to this I am calling it the Houdyshel Method, but not for the purpose of claiming any credit for a "new" method. If grown this way there should be a little coarse sand or fine gravel at the bottom. It will also be advisable to feed the plants when growth is well started and plants are several inches in height. For feeding, weak liquid manure, Plantabs, Vigoro Tablets or Spoonit are recommended.

You will have no difficulty after June 1 in maintaining good temperatures for *Caladiums*. At that time if growth is well advanced, the plants will also have a greater tolerance for temperature. We have also started them out doors

here after June 1, but they will start more slowly and outdoor culture is difficult here as we have no rains when they are growing and our air is very dry. Caladiums like high atmospheric humidity and a constantly moist soil.

Caladiums will grow well into the winter if kept warm and constantly moist. But when and if the foliage begins to yellow at once withhold water. Pots may be turned on their sides if there is danger of catching any water. Keep them bone dry until about March or whenever you wish to start again. But pots or tubers must be stored in a warm place.

We had more enthusiastic reports from customers who purchased our Caladiums last year than for any other item. This success was partly due to the fact that our tubers have been stored and kept at a high temperature. They have no rot. Caladiums if grown well will give much pleasure. They are ideal for the greenhouse or a warm kitchen or glassed in porch. Because of these reports of high satisfaction, we are offering a much longer list of superb varieties this spring.

1. **Ace of Hearts.** Dwarf. Rose center, green border, scarlet ribs.
2. **Attala.** Med. size. Deep green background, blotched pink, crimson veins.
3. **Candida.** White with some green markings. Fine for pots.
4. **Cleo.** Green background, crimson cen., pink, white and yellow veins.
5. **Crimson Wave.** Crimson, bordered dark green. Large crinkled, transparent leaves.
6. **Dr. M. Cook.** Very dark moss green, plum red cen., red ribs, crumpled leaf.
7. **Edith Meade.** Lg. snow white cen., red midrib, bordered narrow green.
8. **Hortulania.** Bright crimson leaves, bluish tint.
9. **Itacapus.** Dark red, small brighter red spots.
10. **Jessie Thayer.** Flushed pink and white, red veins.
11. **John Peed.** Red center and veins. Medium size, round leaves.
12. **Lord Derby.** Lvs. transparent, rose, dark ribs narrow green border.
13. **Macahyba.** Bronze, green and red rays, lg. pink and white splashes.
14. **Madam Truall.** Lg. deep purple, deeper ribs, bronze-green edges.
15. **Marie Moir.** White, green veins, greenish white margin, spotted red.
16. **Mrs. F. Sanders.** Deep rose on dark green, heavily blotched. Round large leaves.
17. **Mrs. W. B. Haldemann.** Red cen., narrow green margin. Many leaf clusters.
18. **Red Flare.** Scarlet, blotched 2 tones of green.
19. **Rising Sun.** Gold tinted background, dark red center, red ribs.
20. **Scarlet Pimpernelle.** Scarlet, straw yellow margin. Large leaves.
21. **Sea Gull.** Dwarf. Green, white center, white midribs.
22. **Sorocoba.** Transparent, silver white, suffused pink, green ribs, veins and edges.
23. **Spangled Banner.** Red leaf, dark ribs, abundant pink spots. Good grower.
24. **Thomas Tomlinson.** Brilliant red, narrow green margin.
25. **Triomphe de L'Exposition.** Green background, bright crimson, scarlet ribs.

Lack of space prevented fuller descriptions. But include with each description, does well in pots, very showy, a favorite, fascinating, magnificent, gaudy, a poet's dream, an artist's delight, miracle of color.

These warm glowing colors will give you lots of **Fun in 50**, and fun is really fun—damental. It makes you healthier, happier and a better salesman or a better doctor or a better mechanic.

Prices. These tubers are mostly 2" to 2½" and even 3" in diam. They are large. Price 35c ea. You may select any 12 for \$3.60.

The **entire collection** of 25 var. for \$6.50. This size and quality usually sells for 50c ea. or more. Every tuber will be labelled by number. Please order by number only. You can easily identify the name by this number. There may be a necessity for us to substitute, especially late in the season, so please do not say, "no substitution." Best to order very early and permit us to ship after March 1 to 15 to the cold north. When your order is received, it will be packed

and you will not lose priority on the scarce varieties. Incidentally, we can send you 25 celluloid labels for 75c.

THE GESNARIA FAMILY — Gesneriaceae

In this family belong Gloxinias, Achimines and Saintpaulias.

Gloxinias really belong to the genus *Sinningia* and are hybrids developed from *S. speciosa*. This species was introduced before 1817 and named *Gloxinia speciosa*. A few years later botanists discovered the error but the name *Gloxinia* will always be applied by gardeners to these popular tuberous plants. The true botanical Gloxinias make no tubers. They are not florist's flowers and are not offered in catalogues but *Sinningias* will always be called *Gloxinias* and we use the name here.

Gloxinias are natives of Brazil, a warm tropical climate, which gives a key to their culture. Probably most failures result from trying to start them or grow them in cold rooms. They are ideal plants for your greenhouse or a warm room in the house.

The bell shaped flowers, originally purple, have been developed into shades of red, pink, purple and white in many variations. Some are blotched, spotted or sprinkled with darker colors. All are very rich and beautiful. The foliage too is rich and exotic in appearance and the plants would be worth cultivating for the foliage alone. It is of soft velvety texture, glowing with almost metallic tints, a rich green marked by gray and white.

Every month of the year we receive requests for *Gloxinia* tubers. They can only be had from Jan. to about April. We usually sell out by March. Later one must pay more and buy plants. We do not list plants because they cannot be sent long distances. Plants thus received are not very satisfactory. I advise you to buy tubers, early.

How to Grow Gloxinias. Pot the tubers in Feb. or Mar. April plantings will do well, if you can get the tubers. We expect to have them as late as April but a few sorts may be sold out. Cover the tubers lightly. The tubers must be stored in a warm room, packed in dry sand or peat, not exposed to the air or to moisture. Storage temperature, about 55°.

Our tubers may be set in 5" pots. Read our Potting Directions on a previous page. A good soil is one-third each of peat, rich fibrous loam and sand. If the loam is low in humus, combine it with well rotted leaf mould that has been rubbed thru a $\frac{1}{8}$ " mesh screen.

We have grown Gloxinias successfully by this method but even more successfully in pure peat and sphagnum by the method described as the "Houdyshel Method" under *Caladiums*. Even with out feeding, we have seen Gloxinias grown in peat and sphagnum double in diameter in one season. *Caladiums*, Gloxinias and Achimines are acid loving. Any alkaline soil used in potting these may bring grief.

A good starting and growing temperature is 60° at night and about 70° day time. A little higher during the day will not hurt them and in the summer when in full growth the temperatures nature provides will be higher. Some successful growers advise full shade for Gloxinias but some advise a south window and much sunshine. The best practice is probably between these extremes. Fortunately the plants will tell us when pleased. A stocky, vigorous, blooming plant is situated correctly. A leggy sprangling plant is receiving too little sun.

Keep them moist, not soggy, when starting. When in good growth they require abundant moisture and high humidity of the air. Cold air currents must not strike the plants. Protect always from wind and drafts. It is better to use tepid water for watering the starting tubers and the plants in winter. One is usually advised to keep water off of the leaves but when properly shaded we have never had a spotted leaf and we water with a hose but avoid wetting foliage very much.

Altho very few of our customers blame their bulbs when an occasional failure results, they do sometimes ask me why nine bulbs grew and one did not. Since long-distance diagnosis is impossible, I tell you here more definitely than most books on bulb culture, the conditions necessary for success. The average amateur will be able to succeed. But if you overwater when starting the tubers, allow the temperature to go down to 55°, 50°, 40° or 34° a few times

or even one time, a few tubers may fail. Probably all would fail if chilled by 40° and surely by 34°. There is a certain amount of tolerance in varieties or in individuals. Thus one bulb may fail and nine grow if the culture is 75% to 90% correct.

After flowering lessen the water given, gradually. When the tops are dead give only enough water to prevent shriveling. By Feb. some of the tubers will show growth. Repot the tubers as soon as they start to grow.

We offer only Calif. grown Gloxinias, and Tub. Begonias and Florida grown Caladiums because they are the best in the world. I could buy Belgian grown Gloxinias for less and sell them at a lower price, but it has been reported to us that at least some of the European Nurseries are growing strains that have inferior flowers.

We offer 1¼"-1½" tubers in the following varieties: **Blanche de Meru**, rose white throat; **Emperor Frederick**, scarlet, white border; **Emperor William**, violet, white border; **Etoile de Feu**, scarlet; **Mont Blanc**, pure white; **Prince Albert**, frilled, dark violet; **Princess Elizabeth**, blue, white throat; **Roi des Rouges**, frilled, dark crimson; **Tigrinia**, from light rose to dark lavender; **Violacea**, soft violet; **Brunhilde**, pure white.

Price, 50c each. The 11 var. for \$5.25. All tubers will be labelled for this price. **Assorted varieties**, all in one bag, \$5.00 per doz. Or one each of 11 varieties above described, all in one bag, unlabelled for \$5.00

Achimines are close relatives of Gloxinias and belong also to the Gesneriaceae. Altho distinctly different, the genera Achimines and Sinningia are closely parallel in the color and form of their flowers, foliage characteristics, ecology in nature and culture. The tubular flowers are mostly in purple tones altho white, pink and red are seen.

Culture. Achimines tubers are very small and in our arid climate they dry out easily if improperly stored. They should be covered by dry sand and stored at a minimum temp. of 45°. It is best to start at once when received if this is Feb. 1, or later. They may be grown in pots or wire baskets. As Achimines are shallow rooting, and the roots need air, fill the pots ½ full of drainage material. 8" wire baskets are ideal containers and will hold several plants. If too full, they transplant easily. Line the basket well with sphagnum moss and place the compost in the center. Baskets are listed under "garden supplies."

The best compost for Achimines is one part sand or very sandy loam and two parts well rotted leaf mould or leaf mould and peat. Some commercial growers use a little well rotted manure in compost. A compost suitable for Gloxinias is also good for Achimines as they grow in nature in similar soils. It is important that the soil be at least one half humus. The humus may be peat or leaf mould or a combination. The purpose of sand is to insure good drainage. A top dressing of screened, well rotted manure, may be given the plants after they are well started.

We have the best success when grown by the "Houdyshel Method," described under Caladiums. The largest and fattest tubers have been those grown in pure peat and a little sphagnum.

Do not over water when starting but do not allow them to become dry either. Some varieties start promptly but others start slowly and you may have to wait a long time before all are up. After plants are well advanced they may be fed with manure water, Plantabs, Vigoro Tablets or Spoonit. They should have increased supply of water when in good growth.

Achimines are tropicals and need high humidity and warm conditions. Start them at a temperature of about 60°. When flowering a temperature of 50° is better and by that time you can remove them to the shade of trees, preferably with limbs trimmed high. They must have about 75% shade. Keep them always moist, no drying out. But overwatering mature plants may cause dropping of buds and non-blooming.

1. **Adele de la Haute.** Large fls., shell pink blending to carmine center. Green foliage.

2. **Ambroise Verschaffelt.** Beautiful, veined violet blue, edged lilac. Yellow center. Easy and a profuse bloomer.

3. **Dazzler.** Velvety copper-red, yellow center. One of the prettiest.

4. **Giant Pansy.** Pansy shaped, ruffled edges. Two upper petals blotched

dark blue, 3 lower with yellow. Ground color, sky blue. Leaves bright red on under side.

5. **Little Beauty.** Dwarf. Flowers, rose salmon. Dark foliage.
6. **Longiflora major.** Flowers 3½" wide. Bright cobalt blue.
7. **Margaret.** Pure white. Soft, velvety green leaves.
8. **Mauve Queen.** Dwarf. Rose mauve. Purple leaves.
9. **Maxima.** Very large white with purple eye.
10. **Patens Major.** Wine red or fuschia.
11. **Pulcherrima.** Rich dark violet. Yellow center. Grilled edge. Bronze lvs.

We label tubers by these numbers. Please order by number. Prices: Single tubers, 30c ea. 3 for 60c. \$2.50 per doz. if not more than 2 kinds. **Complete Collection**, 11 varieties separately wrapped and labelled, \$2.75. For separate pots you should have three of each kind. You are also more sure of having each variety. Price, 33 tubers, 3 of each sort, all labelled, \$7.50. Twelve tubers of each kind, total 132 tubers, for \$25.00.

Saintpaulias. (African Violets). Seldom or perhaps never before has a plant attained the prominence and the popularity enjoyed by Saintpaulias within only about a half century after its introduction to horticulture.

The nickname, African violet, is unfortunate and has nothing to justify it except a slight outer resemblance. The plants are so wholly unlike in structure, habits of growth and everything else that the nickname is most misleading to an amateur who is growing them for the first time. It does not do Saintpaulias justice.

Botanically, Saintpaulias and Violets are so far apart that it is a farce to confuse them in the popular mind. Saintpaulias belong to the Gesneriaceae, Violets to Violaceae.

This reminds me of another confusion that was once added to the Violet Family. Believe-it-or-not Ripley once stated that pansies (Violaceae) belonged to the Orchid Family.

Saintpaulias have no fragrance. Many true violets have a fragrance slightly less heavy possibly but equally as entrancing as that of the frangipani or red jasmine. Saintpaulias, to a plant lover are as delectable as frangapane, spelled also frangipani, almond flavored cream tarts are to a hungry man.

Saintpaulias have a beauty of their own, one that attracts many of us far more than that of violets.

We are not telling you how to grow Saintpaulias here. That is fully discussed in our Saintpaulia price list. It would take more than one page here. This price list is free only to intending buyers. If you want it only for the information send 10c, or 16c if wanted by air mail.

But we will offer you a **mid-winter bargain** on the following varieties.

If the name of the variety does not give its color a word follows to give it. The list price also follows. **Admiral**, dark blue, \$1.25. **Amethyst**, \$1.25. **Bicolor**, orchid, \$1.50. **Blue Bird**, blue-violet, \$1.50. **Blue Boy Supreme**, \$1.50. **Blue Eyes**, baby blue, \$1.75. **Blue Girl**, dark blue violet, \$1.25. **Double Duchess**, dark violet, \$1.50. **Double Duchess Supreme**, supreme type, \$2.25. **Double Orchid**, \$3.00. **Du Pont Blue**, \$1.50. **Ionantha**, light blue, \$1.25. **Mary Wac**, violet red, \$1.50. **Mentor Boy**, violet purple, \$1.25. **Purple Prince**, \$1.50. **Red Bicolor**, orchid, \$1.50. **Red Head**, red violet, \$1.50. **Red Head Supreme**, \$2.25. **Sailor Boy**, light blue, \$1.50. **Sapphire**, light blue violet, \$1.50.

At this time of year, one cannot ship safely by mail to the north. But we can pack these and include a little Calif. sun heat, give them double insulation and ship safely by express. We also note weather reports and do not ship when reports are unfavorable. Express cars are heated. If you can arrange to call for them as soon as the package arrives and carry them home, protected from cold, your plants will be received in good order. Since the express charges will be collect we will offer you price reductions that will exceed this cost. Plants listed at a total cost of \$7.50, for \$5.00. On any value above \$7.50, deduct one third and remit the balance.

The entire 20 plants are listed for \$32.00. Send us \$17.50 for this superb collection and we will ship same, express collect. Or we will defer delivery to any date you request. These reduced prices apply only on the plants listed and when shipped by express collect.

Lady Geneva. This is the newest Saintpaulia and recently mentioned by Mr. Wood in his Flower Grower department. It seems to me to be the most important addition to the Saintpaulia list in several years. It is not only one of the most pleasing shades of bright blue but it has a nicely contrasting narrow border of white around each petal. In your collection, it will be the first plant seen. We are pricing this lower than most novelties are when first introduced. Price \$2.00. We will ship with orders that go by express now to colder states, or alone for 50c extra for safe packing by express collect. When warm, safe weather arrives they will be sent for \$2.00, postpaid. At the present time we will ship postpaid to the warm southern states but you must also send 50c extra for the extra insulation.

BEGONIA FAMILY — Begoniaceae

Tuberous Begonias and How to Grow Them. Tuberous Begonias are wonderfully attractive plants for pots and baskets or in the garden. Their popularity is modern and results from recent improvements of their flowers in color, size and form and the great increase in the number of types offered. Begonias respond generously to the skill of the hybridizer and take on the forms and closely imitate the flowers of Camellia, Carnations, etc., and show many forms the like of which have been seen nowhere else in nature.

The flowers of Begonias are monoecious. This means that the individual flowers are not perfect—containing both male and female parts but that there are male and female flowers, separately produced but on the same plant. The large terminal flower on a stem is a male flower with a stamen. On each side is a smaller female flower with its pistil and ovary. If one wishes to produce seed, the pollen from the stamen is placed on the terminal stigma above the ovary. Even an amateur can produce interesting forms by crossing the types. Seedlings may be grown on a thin layer of sifted compost on top of a porous brick and the brick set into a shallow pan of water. Or they may be planted in a pot of pure peat. Place seeds on the surface of wet peat and cover with glass. Watering of plants when necessary must be done by setting pot in tepid water. When large enough, seedlings may be picked up by a toothpick and individually potted into 2" pots of peat. Continue to water by setting pots in a pan of tepid water.

If Tub. Begonias are potted at once when received they must be watered very little until they start to grow. The better practice is to start them by laying the tubers on top of a slightly moist sphagnum or sphagnum and peat mixed. They may be covered just slightly but with the concave side containing the "eyes" only partly hidden. Keep them only slightly moist at a temperature of 60° to 65°, shaded.

When the tops are an inch or more in height and the tuber has made roots, it may be removed with a bit of the compost into its pot or basket. Probably the common practice of merely storing the tubers and potting them when they start to grow is good, tho a little time may be lost. The heated, dry air of a living room is a poor place to store the tubers, to start them or to grow plants.

The soil for Tub. Begonias may be $\frac{3}{4}$ humus and $\frac{1}{4}$ sand or very sandy loam. For the humus use $\frac{2}{3}$ peat or leaf mould and $\frac{1}{3}$ well rotted, old dairy manure. All should be well mixed and fine in texture. Soil should be acid, pH 6.5. If not sufficiently acid, add more peat. The addition of small pieces of charcoal or a tablespoonful of soot is useful.

We also recommend the "Houdyshel Method" for potting and growing as described under Caladiums.

Give liquid manure or soot water, (handful to 2½ gal.) during growth as Begonias of all types are good feeders. They should be fed little and often. When growing well the plants and foliage should be sprinkled well, daily. This will not harm the flowers. Tuberous Begonias need half shade and a cool moist situation. It is better to shift them to outdoors when warm enough as the house air is usually too dry. A lath house is the ideal place in warm weather. Avoid full sun and full shade. When they cease blooming (usually about Dec.), gradually dry them off. The tubers often live over winter in California if not dug but it is better to dig, dry and store here and necessary in cold climates.

Begonia Quality. Tub. Begonias are produced wherever bulbs are grown commercially, but the very best types are the product of California hybridizers and growers. Our Tub. Begonias and Gloxinias are all grown by two world famous California growers. They are the best tubers and they produce the best flowers.

The size of the flowers and their quality does not depend upon the size of the tubers. We offer tubers that are 1¼"-1½" diam. If you plan to shift to outdoors start them in 5" pots. If they are to remain in pots use 6" or 7" pots with plenty drainage. Tubers of this size do not make quite as large plants as the 2" tubers but you can grow more varieties in a limited space and at much less cost.

Giant Double Camellia Flowered. The most popular type. The flowers are like large, perfect Camellia blossoms. We offer 17 colors: White, Blush, Pink, Rose, Crimson Rose, American Beauty, Yellow, Apricot, Salmon, Light Salmon, Dark Salmon, Orange, Flame, Scarlet, Red, Cardinal Red, Dark Red. Price 30c ea. \$3.00 doz. All 17 colors for \$4.25.

Giant Double Carnation Flowered. They resemble huge carnation flowers but are even more perfect. 14 colors: White, Blush, Pink, Rose, Crimson Rose, Yellow, Apricot, Salmon, Dark Salmon, Red Salmon, Orange, Scarlet, Red, Dark Red. 30c ea. \$3.00 doz. All 14 colors for \$3.50.

Giant Double Picotee. The exquisite double flowers are edged white like a Picotee Tulip. 5 colors: Pink, Rose, Salmon, Apricot, Red. 30c ea. \$3.00 doz. One of each color, 5 bulbs \$1.40.

Double Hanging Basket or Lloydii. The stems are pendulant. Very attractive in pots, hanging baskets or shaded rock gardens. 8 colors: Red, Scarlet, Rose, Pink, Salmon, Apricot, Yellow, Orange. 30c ea. \$3.00 doz. All 8 colors for \$2.25.

Giant Single Frilled or Crispa. Large, profusely frilled and ruffled single flowers. 10 colors: White, Yellow, Pink, Scarlet, Rose, Apricot, Red, Dark Red, Salmon, Orange. 30c ea. \$3.00 doz. The 10 colors for \$2.80.

Giant Single Marginata. These are Crispa type flowers but with a border of contrasting color. The white has a pink border and the salmon has a copper border. They are in assorted colors only. One may not select any desired color. This is a new type. Price assorted colors only, 35c ea. Per doz. \$3.50.

Giant Single Cristata. Similar to Crispa but less frilled. Each petal bears a coxcomb-like tuft or crest. A very new and novel form. Assorted colors. 35c ea. \$3.50 doz.

Hollyhock Begonias. Single flowers of mallow pink are produced along a main stalk as in the Hollyhock. The tubers are small. 45c ea. \$4.25 doz.

57 Varieties Tuberous Rooted Begonias as above described and in order to be different from Heinz we will include a tuber of *Begonia evansiana*, the hardy begonia (only in mild climates), not for sale separately. You might like to cross this with the less hardy types. Collection price, \$14.50.

THE ORCHID FAMILY — Orchidaceae

We no longer include our full list of orchids in spring and fall catalogs since it would require at least half the space in them.

If you are interested in acquiring Cattleyas, Cymbidiums or other orchids, a post card request will bring our Orchid Price List. Better still, send 25c for our small pamphlet, "How to Grow Orchids," and allow us to prove that they are as easy as Tuberous Begonias. Then we will also send the price list and put your name on our Orchid Price List.

In this price list the following listings are cancelled, *Cypripediums*, *Laelia gouldiana*, clump of four bulbs of assorted *Cymbidiums* for \$10.00.

We recently sold all our assorted *Cymbidiums* to a commercial grower but still have all named sorts at list prices.

We can ship orchids by express, charges collect, all winter.

Special Offers. *Odontoglossum Rossii*, in a paper pot for \$2.00.

Stanhopea tigrina, in wire basket, \$5.00.

Laelia grandiflora in paper pot, \$2.00. Larger plants in basket, \$4.00.

Cattleya gigas. Seedlings of two fine plants, crossed, in 2" pots but ready for 3" pots or a little larger in the spring. \$2.00.

At these prices you will pay costs of transportation by express. But this will be less than the price reduction, I think.

THE PINEAPPLE FAMILY — Bromeliaceae

Bromeliads include Billbergia, Cryptanthus, Aregelia, Tillandsia, Neoregelia and many more genera. We list only Billbergias which include some of the most unusual and fascinating plants. Not only are the flowers in intriguing pastel shades but the floral display is made brilliant by the large vividly colored bracts that cover the scape. The leaves form a rosette and are more or less rigid. Some have brightly colored leaves and others are often mottled, striped or barred. All are desirable foliage plants.

How to Grow Billbergias. All are tropical or semitropical epiphytes and thus are hardy in outdoor gardens only in the deep south. But they are all easy to grow in pots and add distinction as well as beauty to the window garden.

In pots, they should have a soil of $\frac{1}{4}$ sand or sandy loam and $\frac{3}{4}$ peat, or leaf mould. There should be plenty of drainage material in the pot as poor drainage may soon destroy them. Do not overwater when first planted or in winter when semi-dormant. Nor should they become dry enough to shrivel the foliage. In hot weather when they are growing well, water liberally. Keep a drink of water in their cups in the center.

In the outdoor garden they should have the same soil as recommended for pots. A few, like "nutans," will grow in nearly any soil but will do much better in the type recommended.

They need about half shade. Too much sun will burn and finally destroy the foliage. Those species and varieties having highly colored foliage do not develop their rich colors when too deeply shaded. Most of our plants are grown in a well shaded Clivia house. When well established and growing, richer colors may be brought out by giving a little more sun than we do.

Billbergia calophylla. Large, bronze-green foliage with contrasting bars of grey. Very large, showy inflorescence of blood-red bracts and blue flowers. \$2.00.

B. corina. Beautiful foliage, barred grey. \$2.50.

B. distachia. Foliage, reddish green with cream spots. Long flower racemes with rose pink bracts and blue flowers with green margin. Blooms early spring and again in late summer. 50c. Three clones, slightly different, one of each, for \$1.15.

B. nutans. The most popular of all as it blooms in midwinter and is very lovely. Pink bracts, blue and green flowers. 50c. Three for \$1.00.

B. Pyramidalis Hybrid. Pyramidalis x Amoena. Both parents are outstanding and this hybrid is no less. Beautiful in foliage and inflorescence. \$2.25.

B. rubro-cyanea. The most colorful in foliage, showing green, white and red combinations. Inflorescence, crimson bracts, flowers green, edged dark blue. To bring out colors in foliage give more sun exposure, being careful that foliage does not burn. Two seedlings of this sanderiana-nutans hybrid at \$1.25 ea. or both for \$2.00.

B. speciosa. Foliage green above. Under side greyish green. Bracts rose, flowers pale green tipped with blue. \$2.00.

B. Theodore L. Meade (Meade's Hybrid). Nutans x Nobile. Handsome green foliage with vivid large inflorescence. It is called an everbloomer. But this does not mean that one plant blooms continuously or even almost. However, a large group of plants will show flowers for nearly the entire year. It has no definite season but flowers from new leads as they reach the proper maturity. \$2.00.

B. thrysiflora. Mature foliage faintly barred. Summer blooming. Vivid inflorescence, scarlet bracts, blue and purple flowers. \$1.50.

B. Zebrina. Leaves with contrasting white bands and spots. Salmon bracts and green flowers. \$2.50.

Collection of all ten varieties, \$15.00.

The Big Four Collection includes Nutans, Distachia and two slightly different clones of Rubro-cyanea. Here you have the most colorful in foliage and a mid-winter bloomer, that would cost you singly \$3.50. The 4 for \$2.75.